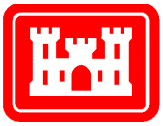
ERDC/EL SR-00-7



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Supplemental Water Quality Analysis—St. Johns Bayou and New Madrid Floodway

Steven L. Ashby, Carlos E. Ruiz, and Patrick Deliman

April 2000

Environmental Laboratory

ERDC/EL SR-00-7
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Final report

Prepared for U.S. Army Engineer District, Memphis
Memphis, TN 38103-1894

U.S. Army Engineer Research and Development Center Cataloging-in-Publication Data

Ashby, Steven L.
Supplemental water quality analysis : St. Johns Bayou and New Madrid Floodway / by Steven L. Ashby, Carlos E. Ruiz, Patrick N. Deliman ; prepared for U.S. Army Engineer District, Memphis.
186 p. : ill. ; 28 cm. —(ERDC/EL ; SR-00-7)
Includes bibliographic references.
1. Water quality — Missouri — New Madrid Region. 2. Environmental quality — Missouri — New Madrid Region. 3. Groundwater — Quality — Missouri — New Madrid Region. 4. Big Oak Tree State Park (Mo.) 5. New Madrid Floodway (Mo.) I. Ruiz, Carlos E. II. Deliman, Patrick N. III. United States. Army. Corps of Engineers. IV. Engineer Research and Development Center (U.S.) V. Environmental Laboratory (U.S.) VI. Title. VII. Series: ERDC/EL SR ; 00-7.
TA7 E8 no.ERDC/EL SR-00-7

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Preface

The work reported herein was conducted for the U.S. Army Engineer District, Memphis, by the U.S. Army Engineer Research and Development Center (ERDC) under the purview of the Environmental Laboratory (EL). Funding was provided under a Military Interdepartmental Purchase Request, number W38XGR92578260.

This report was prepared by Mr. Steven L. Ashby, Dr. Carlos E. Ruiz, and Dr. Patrick N. Deliman, Environmental Processes and Effects Division (EPED), EL. Preparation of this report was under the general supervision of Dr. Richard E. Price, Chief, EPED, and Dr. John W. Keeley, Director, EL.

Dr. Lewis E. Link was Director of ERDC and COL Robin R. Cababa, EN, was Commander of ERDC during the conduct of this study.

This report should be cited as follows:

> Ashby, Steven L., Ruiz, Carlos E., and Deliman, Patrick. (2000). "Supplemental water quality analysis—St. Johns Bayou and New Madrid Floodway," ERDC/EL SR-00-7, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Summary

A supplemental assessment of water quality data was conducted to describe potential impacts on water quality in the St. Johns Bayou and New Madrid Floodway as a result of the proposed flood control project. Existing water quality data from Federal and state resource agencies and literature-based information on land use effects on water quality were compiled for evaluation. Results of this evaluation were used to describe water quality conditions and, in conjunction with land cover and hydrology information, the relative transport/retention of selected materials associated with various hydrologic events based on selected surface water elevations. Specific issues addressed included evaluation of (a) the effects of hydrologic changes on water quality for both the area impacted by the proposed project and in relationship to the overall water quality of the Mississippi River, (b) the effects on water quality associated with potential changes in pesticide use, and (c) the effects of proposed groundwater supplement on Big Oak Tree State Park.

This approach was presented to representatives from the U.S. Army Corps of Engineers, Memphis District, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the Missouri Department of Natural Resources. Spreadsheet calculations were used to conduct mass balances to assess relative impacts with and without the project. Rationale for suggested input into the spreadsheets was presented to representatives from Federal and state agencies prior to application.

Additional water quality data collection included recently collected data in the immediate vicinity of the study area and allowed a broad assessment of water quality conditions. Water quality in the area reflects conditions typical for basins where agriculture is the dominant land use. In general, nutrient concentrations (with the exception of phosphorus) were not excessively high except during periods of elevated flow, and basin concentrations were not substantially different than observations for the Mississippi River. Sediment concentrations were generally lower than concentrations in the Mississippi River and increased with runoff as expected. With the exception of a few occasional high concentrations of nitrates, groundwater quality was acceptable, although phosphorus concentrations in groundwater were generally higher than in surface waters. Point sources were the most notable sources of extremes (high nutrients or low dissolved oxygen concentrations).

Potential changes in pesticide usage and impacts on water quality were evaluated with an assessment of potential changes in cropping practices, a literature review of herbicide transport research, and an assessment of pesticide data compiled in the data retrievals. In general, pesticide concentrations were relatively low in surface and subsurface waters, and water supply concentrations were below water quality criteria for drinking water.

General conclusions are summarized below. Water quality with the project alternative should be similar to conditions that exist during periods of no flooding. Material processing should be similar between existing conditions and the alternative project as well. The basin most likely retains or removes material from headwaters and floodwaters; this process is maximized during low-water periods and is comparable with the alternative project. The addition of over 9,500 acres of restored wetlands should provide for additional water quality improvements.

The impact of pesticides, atrazine in particular, on public groundwater resources is expected to be minimal. Furthermore, the impacts to shallow water resources, i.e., private wells, are also expected to be minimal. A greater potential exists for atrazine contamination to surface waters. The optimal method for reducing this likelihood is the implementation of Best Management Practices (BMPs). It is a feasible assumption that through adoption of BMPs, in combination with monitoring efforts, that atrazine contamination to water resources can be maintained below drinking water standards.

Impacts to the water quality of the Mississippi River with the proposed or alternative project in place are not expected to be discernible, due to the overwhelming volume of water in the Mississippi River relative to floodwater volume in the project area. Mass balance estimates indicated that impacts to material loads of the Mississippi River are less than 0.1 percent for moderate flows with the project.

Potential impacts to Big Oak Tree State Park with the project are likely to be associated with a decreased supply of sediments and the associated sustainability of the site. Historical alterations in the flow regime associated with the development of agriculture in the area during the 20th Century has been suggested as a major mechanism contributing to the decline at the park. The use of groundwater to restore a flooding regime more conducive to the sustainability of the park is suggested and the impacts of reduction in material supply (e.g. sediments) can be lessened with the use of surface water when available. A comparison to bottomland hardwood areas in the St. Johns Basin (which have been isolated from floods) should be considered to further identify the potential for impacts at Big Oak Tree State Park. Iron concentrations near the park were similar for surface-water and well-water sites, and the change in source water would not alter concentrations currently provided to the site. Analysis of iron data indicated that the potential for iron toxicity to native vegetation is low.

Conversion Factors, Non-SI to SI Units of Measurement

Multiply	By	To Obtain
acre-feet	1,233.489	cubic meters
acres	4,046.873	square meters
cubic feet	0.02831685	cubic meters
feet	0.3048	meters
feet per mile	0.19	meters per kilometer
pounds (mass) per acre	0.000112	kilograms per square meter
tons (2,000 pounds, mass)	907.1847	kilograms per square meter

1 Introduction

The St. Johns Bayou and New Madrid Floodway project was authorized for construction by the Water Resources Development Act of 1986 (PL 99-662). The project will close the gap in the Mississippi River levee in New Madrid, Mississippi, and Scott Counties in Missouri. The primary purpose of the project is to provide flood control in the St. Johns Bayou Basin and the New Madrid Floodway. The project is designed to eliminate the physical and economic barriers created by frequent flooding in East Prairie, Missouri, and the surrounding area. The project includes channel enlargements and a 1,000-cfs[1] pumping station for the St. Johns Bayou Basin and closure of a 1,500-ft gap in the levee and a 1,500-cfs pumping station in the New Madrid Floodway. Three alternatives have been described in detail including without project conditions, the project as authorized, and an alternative that avoids and minimizes impacts, which is the recommended plan. Complete details of the project are provided in the Draft Supplemental Environmental Impact Statement (SEIS) (U.S. Army Corps of Engineers, Memphis District 1999).

Areas of controversy during the review process included potential impacts on the hydrology and water quality associated with closure of the 1,500-ft gap in the levee and are described in detail in the SEIS. Water quality concerns with the constructed project include potential impacts of changed hydrology on material transport into and out of the project area, change in pesticide/herbicide application associated with potential changes in agricultural land use, and impacts to Big Oak Tree State Park, which would no longer receive periodic floodwaters from the Mississippi River. Concerns about material transport were centered around the potential loss of wetland functions that improve water quality of floodwaters and the relationship of this potential loss to the overall water quality of the Mississippi River and the hypoxic zone in the Gulf of Mexico. Concerns associated with pesticide/herbicide applications included potential increased concentrations in surface and drinking water supplies associated with increased application. The change in hydrology may accelerate the decline of unique old growth bottomland hardwood forests at Big Oak Tree State Park due to inadequate hydroperiods (Larson, Journet, and Taylor 1992). The project includes opportunities to modify the hydrology at Big Oak Tree State Park with supplements from groundwater wells, but concerns over changes in water quality, particularly elevated iron concentrations, have been expressed.

[1] A table of factors for converting U.S. customary units of measurement to metric (SI) can be found on page x.

Water quality studies in 1978 and sediment analyses in 1979, conducted by the Corps of Engineers and summarized in the SEIS, did not fully address these concerns.

The objective of this study was to compile sufficient water quality data to evaluate the above concerns relative to the three project alternatives. Specific objectives included:

- Describe the general water quality in the project area with the most recent available data.

- Qualify the effects of hydrologic changes on water quality for both the area impacted by the proposed project and in relationship to the overall water quality of the Mississippi River.

- Determine the potential effects on water quality associated with potential changes in pesticide use.

- Determine the effects of proposed groundwater supplement on Big Oak Tree State Park.

2 Methods

Water quality data and the potential for project impacts on water quality were assessed by compilation of existing data, evaluation of applicable water quality constituents, and an assessment of potential impacts based on relative changes in mass associated with representative hydrologic conditions with and without the project. In order to describe potential relative changes in mass of selected water quality constituents, a literature review was conducted to describe general conditions of nutrient transport for wetlands and agricultural lands. Processing (i.e., retention or transport) of constituents was then estimated based on general expected flux of material.

This approach was initially presented to representatives from the U.S. Army Corps of Engineers, Memphis District, the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), and the Missouri Department of Natural Resources (MDNR). These representatives, and others as mentioned in the following, provided comments and input into the development of the methods used to describe water quality impacts in the study area.

Water Quality Assessments

Data collection included a retrieval of water quality data from EPA's Storage and Retrieval System (STORET), and data requests from the University of Missouri Agricultural Research Extension Service, the U.S. Geological Survey (USGS), MDNR, and the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Data sources are listed in Appendix A. Data retrieved from sources other than STORET were compared to STORET data to ensure that data were not duplicated. Results of data retrievals were compiled into a database (Appendix B) for subsequent analyses.

Water quality data from the retrievals and data requests were grouped into surface water, well water (groundwater), or effluent discharge or point source data. Water quality data assessments focused on nitrogen, phosphorus, carbon, suspended sediments, iron, and selected herbicides and insecticides. Additional water quality constituents were retained in the database. Summary statistics such as minimum, maximum, mean, and variance were calculated for selected water quality constituents in the database. Monthly temporal variability was assessed using graphical displays of data for selected water quality constituents. Stations with unrealistically high data were excluded during data analyses.

Evaluation of Project Impacts on Water Quality

Land cover data is available from the Memphis District and is summarized in the SEIS. The data consists of acres of specific land cover types by elevation at 1-ft contours. Areas for specific elevations used in this evaluation are presented in Tables 1 and 2. Hydrology information is also available from the Memphis District and is summarized in the SEIS. Data include acreage of areas inundated at 1-ft elevation contours, flood frequency information, discharge information, and volumes of water at 1-ft elevation contours. Hydrologic and land cover data were used in conjunction with water quality data to conduct mass balances for various scenarios associated with the project. A spreadsheet was developed to calculate expected loads under various scenarios. Scenarios used volumes and acres of land cover type at selected elevations. Material processing estimates were then calculated using expected loads and wetland function factors to yield a value, referred to as a wetland function value. Wetland function factors may be defined as an approximation of the material that is retained by the land cover (i.e. removed from the floodwater) or is transported from the land cover to the floodwater. The net yield, or load, was compared to the total available load, and the percentage that was transported or retained, referred to as the watershed function, was used for a relative comparison between scenarios.

Five hydrologic scenarios based on elevations were considered (Table 3). Scenario 1 describes existing conditions without any flooding. Scenario 2 describes conditions associated with the authorized project. Scenario 3 describes conditions associated with the alternative (avoid and minimize). Scenario 4 describes conditions representing an infrequent, major flooding event associated with an elevation of 300 ft. Scenario 5 describes conditions representing a more frequent flooding event associated with an elevation of 290 ft for both basins. The approach was applied separately to the St. Johns Bayou area and the New Madrid Floodway. Hydrology information for November through May was used and two seasons were described for Scenarios 2 and 3 based on proposed changes in the inundation due to flooding. Increased inundation from watershed inputs, associated with proposed changes to winter waterfowl habitat, was used for season 1 (November – January). Decreased inundation as a result of evacuation of watershed input and prevention of backwater flooding from the Mississippi River associated with the proposed project was used for season 2 (February - May).

Calculations in season 2 (for both Scenarios 2 and 3) for both basins assume that backwater flooding retained for waterfowl (season 1) will be partially removed via pumping/gravity flow and Mississippi River water will be allowed to enter into the project level to some extent. The concentration used in the spreadsheet reflects an expected value based on a review of existing water quality data for both water sources (Mississippi River and Headwater). Wetland functions were calculated on acreage for an elevation of 280 ft during season 2.

Loading estimates were calculated in the spreadsheet for each scenario using estimated concentrations for two sources of floodwater (i.e., the headwaters and Mississippi River water) derived from the database and wetland function factors. A literature review was conducted to develop general ranges of wetland water

quality functions and export coefficients for runoff from upland and agricultural lands. Discussions with a water quality specialist with the USGS and agricultural experts at the University of Missouri Delta Research Center were also conducted to provide input into the development of function factors used in the spreadsheet.

Wetland function factors were developed for two general types of land covers, (a) those that are described as wetlands, and (b) upland and agricultural lands that are flooded. The first step in assigning a wetland function factor was to determine if the land cover would generally remove materials from the floodwater or export to the floodwater more material than it retained. A negative value was assigned for net removal and a positive value was assigned for net export. As an initial classification, land covers that can be considered as wetlands (cypress/tupelo, scrub/shrub marsh, marsh, bottomland hardwood, riparian, sandbars, open water, and rivers) were assigned a negative function factor for each constituent (except for carbon as described below). Upland and agricultural lands, when flooded, were considered to remove material via sedimentation but also to export material via perturbations to the land associated with farming practices and crop type for a positive net export. Rationale for wetland function factors and export coefficients used in this analysis are described in the following paragraphs and were distributed to representatives from the Memphis District, MDNR, FWS, USGS, and EPA.

Overview of Water Quality Processes in Wetlands

General information on the impacts of wetland hydrology and wetland type was used to assign wetland function factors, although it is recognized that responses in material cycling are often quite variable. For example, wetlands subjected to different flooding regimes provide a different response for some processes. Litter decomposition can be slightly higher in manipulated (pumping) areas than in natural and impounded wetlands (Conner and Day 1991). In natural and impounded areas, nitrogen was immobilized during spring and summer but mineralized in the manipulated area during the same period (Conner and Day 1991). Phosphorus was not immobilized in the natural and impounded area but was mineralized at a slower rate than in the managed area (Conner and Day 1991). The general conclusion was that burial, or net accumulation of organic matter, nitrogen, and phosphorus, was more prevalent in stagnant, more flooded areas, and mineralization and/or export was greater for the managed areas. Significant removal of nitrogen has been observed for alluvial floodplains (Brinson, Bradshaw, and Kane 1984) and forested wetlands (e.g., bottomland hardwoods in the Atchafalaya Basin flooded for 67 days, Lindau, DeLaune, and Pardue 1994). Removal of total phosphorus by various types of wetlands can also be significant. Kadlec (1997) observed a 94 to 99 percent reduction in total phosphorus concentrations in wastewaters that were subjected to wetland treatments. Often, removal may be attributed to sedimentation of particulate phosphorus, which can be the dominant phase (Lindau, DeLaune, and Pardue 1994). However, relationships of small upland wetlands to the watershed can be highly variable depending on watershed conditions and runoff events. In a watershed that is primarily pasture for sheep grazing, the receiving wetland retained 23 percent of the nitrogen and 38 percent of the phosphorus entering the

system (Raisin 1996). Sediment retention is also highly variable and averages about 30 percent of the total entering with a maximum retention of about 95 percent (numerous studies summarized in Adamus et al. 1991).

In riparian zones, denitrification is also an important removal process (Pinay and Decamps 1988). Nitrate loss in riparian zones can be as much as 50 to 100 percent in headwater streams with only 15 percent removal associated with sediments (Cooper 1990). As observed for other wetland types (Raisin 1996), retention function of riparian buffers varies with width and frequency of gaps (Weller, Jordan, and Correl 1998).

In open water systems and rivers with sandbars, nitrogen and phosphorus removal processes are also occurring but probably to a lesser extent than in vegetated wetland systems such as marshes, swamps, and bottomland hardwoods. More variable hydrologic regimes in the latter systems would tend to increase the transport of materials and result in higher removal rates.

Results of intensive studies conducted in the Cache River system in northeastern Arkansas provide relative information on wetland processes for a system in the immediate vicinity of the study area and may be used to provide better estimates of wetland function factors. For example, DeLaune et al. (1996) measured nitrate reductions between 59 and 82 percent, which are consistent with studies described above. Conversely, Dortch (1996) estimated removal efficiencies of 29.5 percent for inorganic suspended solids, 21.4 percent for total nitrogen, and only 3 percent for total phosphorus. These values are probably lower than would be expected in the study area since they were calculated for a flow-through system and represent annual conditions. However, backwater flooding of bottomland hardwood systems during winter and spring may be less effective at nutrient transformation and removal since biological activity is greatly reduced during these seasons (Harris and Gosselink 1990) and estimates from Dortch (1996) may not be that low. Kleiss (1996) estimated a 14 percent decrease in suspended sediment load, which is also lower than would be expected for the study area due to the anticipated hydrology of a gradual flooding and dewatering. However, review of the 1993 flood data for the Mississippi River upstream of the study area (Holmes 1993) indicated that there was little sedimentation in the backwater areas downstream of St. Louis, MO, and a decrease of only 10 to 20 percent may be reasonable.

Wetland function factors for wetland land covers were estimated from the above information, in consultation with wetland experts when possible, and were reviewed by representatives from the Memphis District, EPA, FWS, and MDNR (Table 4). In general, the wetland function factor is an estimation of the percentage of mass of the constituent (nitrogen, phosphorus, carbon, and sediment) that will be retained by (including removal) or transported to the system. This value is usually measured from a mass balance approach and accounts for material already in the land cover. Vegetated wetland types were considered to be similar in removal efficiencies and more efficient than nonvegetated or sparsely vegetated types (e.g., open water, rivers, and sandbars). Values assigned were based on estimates from references noted in Table 4. Values for wetland types where little information was available were assigned

relative to values used for cypress/tupelo systems. For many of the land covers, carbon was assumed to be converted to dissolved forms and easily transported, so a positive function factor is suggested. Observations in bottomland hardwood systems in Mississippi (Ashby et al. 1991) and other systems (Harris and Gosselink 1990) support this assumption.

Estimation of Upland and Agricultural Export Coefficients

Wetland function factors or export coefficients for periodically flooded upland and agricultural land covers have not been developed. Consequently, consideration of material from two sources, (a) material available for export from the land (traditionally measured as export coefficients), and (b) removal from or export to the floodwaters (such as processes observed for wetlands), is required. Export loads for nitrogen, phosphorus, sediment, and carbon were estimated using initial export coefficients (ECi) (Beaulac and Reckhow 1982; Peterjohn and Correll 1984; Lowrance et al. 1984), soil fertility measurements (University of Missouri 1996), and representative concentrations. The initial export load was adjusted to account for changes in the availability of material associated with flooding versus runoff. Based on discussions with agricultural experts in the study area, relatively low slopes in the area (1 to 2 ft/mile, Luckey and Fuller 1984), and gradual changes in stage height with flooding and receding, sediment export from the upland and agricultural land covers is expected to be relatively low. Phosphorus concentrations in the soils are relatively high (23 to >70 lb/acre) and similar by cropping options (University of Missouri 1996) but are considered to be less mobile than nitrogen due to a lower solubility. Nitrate does not attach to soil particles but remains soluble and is easily transported with water (Killpack and Buchholz 1993) both as surface flow and subsurface flow. Legume crops such as soybeans can add up to 30 to 50 lb/acre of nitrogen in the study area (Killback and Buchholz 1993) and would result in a higher export coefficient than for other crop types.

These factors were used to adjust the export coefficient (EC), and an individual load was then calculated for each constituent. The individual load for each constituent was then added to the load associated with the floodwaters for estimation of the total load available. Since estimates of loads account for processes that impact concentrations and mass, a wetland function factor of positive 1 is assigned to all upland and agricultural land covers (i.e., 100 percent of the estimated load is available for transport when the floodwaters recede). The net yield is then calculated by reducing the load associated with floodwaters by 10 percent to describe losses from sedimentation.

Nitrogen and phosphorus

Export coefficients from Beaulac and Reckhow (1982), presented in Table 5, were used to estimate initial export loads for nitrogen and phosphorus. The median value of the export coefficient was considered as the initial mass

available. Additional information reviewed is summarized in Tables 6 and 7. Land covers in the study area that were not represented by those in Beaulac and Reckhow (1982) were assigned a value from a similar land cover. Since the literature-based loads represent annual loads, the initial estimated loads are reduced by a percentage that estimates the available load during the period of flooding. It was recommended that the initial nitrogen load be reduced by 25 percent and the initial phosphorus load be reduced by 50 percent. The rationale for these reductions is based on an expected decrease in the annual export coefficient since consideration is given to the wet period only and a higher particulate phase for phosphorus than for nitrogen. Adjusted export coefficients represent the amount exported for the period of inundation.

Calculation of export coefficients for nitrogen and phosphorus for various land covers is provided below:

Herbaceous Vegetation

Nitrogen –	Range 2-7 kg/ha/year ECi = 2.5 kg/ha/year
Suggested value for EC = 2.5 kg/ha/year $\times$ 0.75	= 1.875 kg/ha
Phosphorus –	Range 0 – 0.8 kg/ha/year ECi = 0.2 kg/ha/year
Suggested value for EC = 0.2 kg/ha/year $\times$ 0.50	= 0.1 kg/ha

Pasture

Nitrogen –	Range 2 - >3000 kg/ha/year ECi = 5 kg/ha/year
Suggested value for EC = 5 kg/ha/year $\times$ 0.75	= 3.75 kg/ha
Phosphorus –	Range 0 – 5 kg/ha/year ECi = 0.8 kg/ha/year
Suggested value for EC = 0.8 kg/ha/year $\times$ 0.5	0.5= 0.04 kg/ha

Cotton

Nitrogen - Based on estimates for row crops	Range 2 – 80 kg/ha/year ECi = 9 kg/ha/year
Suggested value for EC = 9 kg/ha/year $\times$ 0.75	= 6.75 kg/ha
Phosphorus – Based on estimates for row crops	Range 0.2 – 18.6 kg/ha/hr ECi = 2.2 kg/ha/year
Suggested value for EC = 2.2 kg/ha/year $\times$ 0.5	= 1.1 kg/ha

Cotton/soybean

Nitrogen – Export expected to be high since soybeans are nitrogen fixers. Based on estimates for mixed agricultural	Range 2.5 – 41.5 kg/ha/year ECi = 13: kg/ha/year
Suggested value for EC = 13 kg/ha/year $\times$ 0.75	= 9.75 kg/ha

Phosphorus – Based on estimates for mixed agricultural	Range 0.2 – 3.2 kg/ha/year ECi = 1 kg/ha/year
Suggested value for EC = 1 kg/ha/year × 0.5	= 0.5 kg/ha
Soybean	
Nitrogen – Export expected to be high since these are nitrogen fixers. Based on estimates for mixed agricultural and nitrogen fixation	Range 2.5 – 41.5 kg/ha/year ECi = 20 kg/ha/year
Suggested value for EC = 20 kg/ha/year × 0.75	= 15 kg/ha
Phosphorus – Based on estimates for row crops	Range 0.2 – 18.6 kg/ha/hr ECi = 2.2 kg/ha/year
Suggested value for EC = 2.2 kg/ha/year × 0.5	= 1.1 kg/ha
Soybeans/corn	
Nitrogen – Export expected to be high since soybeans are nitrogen fixers. Based on estimates for mixed agricultural	Range 2.5 – 41.5 kg/ha/year ECi = 13 kg/ha/year
Suggested value for EC = 13 kg/ha/year × 0.75	= 9.75 kg/ha
Phosphorus – Based on estimates for mixed agricultural	Range 0.2 – 3.2 kg/ha/year ECi = 1 kg/ha/year
Suggested value for EC = 1 kg/ha/year × 0.5	= 0.5 kg/ha
Corn	
Nitrogen - Based on estimates for row crops	Range 2 – 80 kg/ha/year ECi = 9 kg/ha/year
Suggested value for EC = 9 kg/ha/year × 0.75	= 6.75 kg/ha/year
Phosphorus – Based on estimates for row crops	Range 0.2 – 18.6 kg/ha/hr ECi = 2.2 kg/ha/year
Suggested value for EC = 2.2 kg/ha/year × 0.5	= 1.1 kg/ha

Carbon

Carbon transport was considered to occur primarily as dissolved organic carbon since there is a considerable amount of tillage and burning of residue which would greatly reduce the export of particulate organic carbon. Export of carbon was based on dissolved carbon concentrations, soil fertility measurements, and export coefficients. Organic matter content in the study area ranges from 1 to 3 percent (University of Missouri 1996). Runoff coefficients for individual land covers were not available and estimates from Peterjohn and Correll (1984) were highly variable, 58.2 ± 61.3. A winter value of 3.6 kg/ha

(Peterjohn and Correll 1984) was considered representative and an adjustment to account for land cover was not applied.

Suggested value for EC = 3.6 kg/ha

Sediment

Export of sediment was based on suspended sediment concentrations (USGS data and STORET data) and reported daily loads (Holmes 1993). Sediment retention during inundation was estimated to be 10 percent since there is little evidence of sediment deposition following flooding in the study area. Suspended sediment concentrations were highly variable and ranged from 45 to 451 mg/L. Holmes (1993) reported a mean daily concentration of 317 mg/L and median daily load of 717,000 tons/day for the 1993 flood (measured in the Mississippi River at Thebes, IL). Corresponding values of 302 mg/L and 139,000 tons/day were presented for the period of record. These concentrations were somewhat higher than concentrations observed in the headwater region (e.g., USGS data from Morehouse, station 7024070); therefore, instantaneous sediment loads were estimated at 4.63 kg/sec based on concentrations and discharge measurements. A 60-day period of rain was used to calculate the total load which was then divided by the total area (184,855 ha) to estimate the initial export coefficient.

Suggested value for EC = 130 kg/ha

After discussions with FWS personnel and agricultural experts, it was determined that export coefficients for with- and without-project scenarios were better representations of conditions if transport from the system prior to inundation (existing conditions) was considered. Under existing conditions, rainfall in November and December can result in high runoff or export. With the project in place, this same period results in retention of rainfall and a decrease in export. Therefore, export coefficients for Scenarios 2 and 3 that describe with-project conditions were further reduced by 50 percent to account for decreased loss associated with decreased runoff prior to inundation. Material retained or transported in the upland or agricultural land covers was then calculated in the spreadsheet using the following equations. Appropriate conversions were made to express mass in kilograms and runoff in kilograms per acre.

$$V_{lc} = (A_{lc}/A) \times V \quad (1)$$

where:

V_{lc} = volume of land cover when inundated

A_{lc} = area of selected land cover at the selected elevation, acres

A = total area at the selected elevation, acres

V = volume provided at selected elevation, acre-ft

$$\text{Load} = C \times V_{lc} \quad (2)$$

where C = concentration. This load is applied to land covers described as wetlands.

Or:

$$\text{Load} = (C \times V_{lc}) + (A_{lc} \times EC) \quad \{EC = EC \times 0.5 \text{ for Scenarios 2 and 3}\} \quad (3)$$

This load is applied to land covers described as upland or agricultural lands and includes the load from floodwater in addition to material exported from the land.

$$\text{Wetland Function Value (expressed as a net load)} = \text{Load} \times \text{Wetland Function Factor} \quad (4)$$

$$\text{Net Yield (for wetland land covers)} = \sum(\text{Load} + \text{Wetland Function Value}) \quad (5)$$

$$\text{Net Yield (for upland and agricultural land covers)} = \sum [(C \times V_{lc}) \times 0.90] + [(A_{lc} \times EC) \times \text{Wetland Function Factor}] \quad (6)$$

The calculation assumes a 10 percent reduction in the load from inundation due to sedimentation. Separate loads, due to inundation, are added for scenarios with two hydrologic seasons (Scenarios 2 and 3) and the export from upland and agricultural lands is accounted for during season 1, which is the season when the maximum area is inundated.

The effect of the watershed on material processing (watershed function) can be expressed as a percentage of material retained or transported. Negative values indicate transport of material, and positive values indicate retention of materials.

$$\text{Watershed Function} = [\sum(\text{Load}) - \sum(\text{Net Yield})/\sum(\text{Load})] \times 100 \quad (7)$$

Sensitivity Analysis

Since the wetland function factors and the export coefficients are simply an educated guess, the spreadsheet calculations were also conducted using wetland function factors at near maximum and minimum values, respectively, to define the range should each land cover function at a maximum or minimum level. To assess the sensitivity to concentrations in floodwaters, concentrations of nitrogen, phosphorus, and organic carbon from season 1 were doubled for season 2 and the analysis was recalculated for the New Madrid Floodway scenarios. Sensitivity to reductions in runoff associated with inundation was also assessed for the New Madrid Floodway scenarios by elimination of the 50 percent reduction in the available load used in Scenarios 2 and 3.

Evaluation of Project Impacts on Water Quality of the Mississippi River

Impacts on the water quality of the Mississippi River were described with evaluation of output from the spreadsheet and a water balance with discharge data from 1943 to 1974 and from 1975 to 1998 (Table 8). Limited water quality data for the Mississippi River was available from Hickman, KY, for 1969 and 1970 and from Thebes, IL, for 1994 through 1998. Data from USGS stations at New Madrid and Caruthersville, MO, were not applicable. While the data from Hickman are not very recent, and the data from Thebes represent values upstream from the confluence of the Mississippi River and the Ohio River, these data were the best available.

A mass balance approach was used to assess potential impacts of the project on the water quality of the Mississippi River. Existing conditions allow for periodic movement of water from the Mississippi River into the project area and result in mixing with headwaters in the area, transport of material to the area, and transport of material from the area. Hydrologic information provided by the Memphis District (Table 8) indicated that monthly means were highly variable during 1943 to 1974 and between 1975 and 1998. Mean values of 800,000 and 700,000 cfs were considered to represent volumes that would provide floodwaters at elevations of 290 and 282 ft, respectively. A period of 5 days was considered to represent the time of inundation of a representative flood, and relative volumes of headwaters and Mississippi River waters were then calculated for the flooded area. Concentrations for nitrogen, phosphorus, organic carbon, and suspended sediments for the headwaters and the Mississippi River were then multiplied by relative volumes to determine total mass available for each volume. The expected percent removed for each basin was then applied to the total mass available in the appropriate basin, and the difference to the total mass available in the Mississippi River was then expressed as a percentage.

Evaluation of Potential Changes in Pesticide Usage on Water Quality

A literature review was conducted to describe the transport of herbicides in surface and subsurface drainages in the region. Potential changes in pesticide use and pesticide impact on water quality were also evaluated based on existing water quality data for current conditions (current practices and existing acreage) and the qualitative extrapolation of potential increase in pesticide usage due to the project. Identification of the potential pesticide impact using the spreadsheet analysis was considered to be inappropriate since there were limited measurable concentrations in the study area. Experts at the University of Missouri Delta Research and Extension Service were consulted on potential changes in crops, pesticide application rates, and pesticide interactions with crop types and soils.

Data used to assess pesticide concentrations in the project area were extracted from the STORET retrieval database. Data from the USGS National Water-Quality Assessment (NAWQA) study and well-water data from the USDA

NRCS were also evaluated. Summary statistics for water quality data from surface sites are presented in Appendix B for detected pesticides. Pesticide data from the NRCS study and the NAWQA data (Morehouse and Rives stations) are included in Appendix B. Records from public drinking supplies in the area were also evaluated. Parameters with measurable concentrations at Morehouse were evaluated for application rates using distribution maps from the NAWQA Pesticide National Synthesis Project available at http://water.wr.usgs.gov/pnsp.

Evaluation of Potential Impacts to Big Oak Tree State Park

A mass balance approach was used to assess potential impacts of the project on the water quality that provides periodic flooding to Big Oak Tree State Park. Existing conditions, which allow for periodic movement of water and materials from the Mississippi River into and out of the area, would be prevented with the project. Periodic flooding with well water would be conducted to provide controlled hydrology to the area, but changes in water quality would occur as a result in changes in source water. Estimated concentrations for nitrogen, phosphorus, organic carbon, and suspended sediments for the headwater and groundwater were multiplied by relative volumes to determine total mass available for each volume. The change in mass was then expressed as a percentage for each constituent. Potential impacts of iron toxicity were evaluated with an assessment of iron concentrations in surface water and groundwater and a review of relative literature.

3 Results

Data in the original STORET retrieval represented 217 sites, but evaluation of the sites resulted in elimination of sites to a base of 89. Most of the sites eliminated were in the vicinity of Reelfoot Lake, TN, and were not considered to be representative of the study area. Data from 10 sites in Kentucky and 10 sites in Tennessee were retained since evaluation indicated that they were from the same aquifer, same ecoregion, or in the Mississippi River (Figure 1). Data collected ranged from 1969 to the present. Data recently collected (1994 through1998) at Morehouse and Rives as part of the NAWQA program were also used. Summary statistics for water quality data from surface sites are presented in Appendix B and summarized in Table 9 for selected constituents. Water quality concentrations for selected constituents are depicted in Figures 2-14. Mean values are presented in Table 10. Concentrations used in the spreadsheet (Table 11) were also provided to other agencies for review and comment prior to use in the spreadsheet. Data for surface water sites were used to establish estimated concentrations used in the spreadsheet. Limited data were available for the Mississippi River (Hickman, KY) in the immediate vicinity of the project. Consequently, comparisons to headwater concentrations and other relationships as described for each constituent in the following were used to determine representative concentrations for the Mississippi River.

In general, water quality constituents represented the various sources of water, e.g., streams, effluents, or groundwater (wells); however, temporal trends in water quality were discernible for selected constituents. Dissolved oxygen concentrations were generally above 6 mg/L and near 12 mg/L in the winter and describe conditions in streams (Figure 2). The relatively low values observed in December and February were measured at well sites and are not indicative of surface water concentrations. Biochemical oxygen demand (measured as a 5-day demand, BOD_5) values were relatively low except for measurements in September and October, which ranged from near 2 to near 50 mg/L (Figure 3). All BOD_5 values reported were measured at effluents. Additional point source data (not in STORET) were available from MDNR and were limited to evaluations in the vicinity of the Sikeston and Charleston Municipal Wastewater Treatment Facilities. In general, these studies concluded that BOD and suspended solids in the effluents were often at or above permit values, which is consistent with other observations.

Nitrate/nitrite values were mostly below 2 mg/L in surface-water samples with effluent concentrations occasionally above 2 mg/L (Figure 4). Slightly higher values (between 2 and 4 mg/L) were observed in surface waters in

December of 1992 and at an effluent in September of 1976. Extremely high values observed at an effluent in May indicate anomalous data, which were not used in the data assessment. Organic nitrogen values were generally lower than nitrate/nitrite values (as suggested by concentrations observed at the Morehouse station) but limited data were available (Figure 5). Concentrations observed at the Morehouse and Rives stations were comparable to observations from the STORET retrieval. Seasonal trends in nitrogen concentrations were not apparent in the surface water samples.

Phosphorus concentrations were quite variable and total concentrations were relatively high with values often occurring greater than 0.1 mg/L (Figures 6 and 7). Dissolved phosphorus values were less variable than total phosphorus values and mostly remained near 0.05 mg/L. As observed for nitrogen species, concentrations of total phosphorus observed at the Morehouse and Rives stations were comparable to observations from the STORET retrieval, and seasonal trends were not apparent.

In general, evaluation of the limited data for nitrogen species suggested that total concentrations in the headwater were near 1.5 mg/L and concentrations in the Mississippi River may be lower (based on comparison of organic nitrogen concentrations (0.41 and 0.12 mg/L, respectively)). A value of 1.2 mg/L was recommended as an approximate concentration for total nitrogen in the Mississippi River. This value is within the range for various nitrogen forms observed at Thebes, IL (Appendix B), but was lower than most forms during November through March when flooding would be expected to occur. Mean total phosphorus concentrations (0.21 mg/L) were also higher in the headwater (consistent with soil fertility information) than in the Mississippi River (0.14 mg/L). Data from Thebes, IL (Appendix B), indicate that values between 0.1 and 0.2 mg/L can be expected for total phosphorus for the flood period.

Limited data for three wells in the project area provided by NRCS for 1997 through 1999 (July through September) indicated that nitrate concentrations were relatively low, i.e. <1 to 2 mg/L except for July 1988 observations at two sites that were greater than 10 mg/L. When values from STORET were included, median values of nitrate/nitrite concentrations in well water (0.22 mg/L) were lower than median values for surface waters (0.33 mg/L). Total phosphorus values reported for well water were relatively high (0.13 to 3.01 mg/L) and reflect high soil fertility in the area. Median values of total phosphorus in well water (0.44 mg/L) were higher than median values in surface water (0.167 mg/L). A more detailed comparison of concentrations in surface water and well water is presented later in this section.

Evaluation of the data for carbon indicated that most of the carbon is dissolved organic carbon, and measured values were often quite higher than observations of total carbon except at effluent sites (Figures 8 and 9). Lower concentrations of organic carbon were observed primarily in the fall season from September through November. A value of 4 mg/L of organic carbon was recommended for both the headwater and the Mississippi River. This value is comparable to values observed at Thebes, IL (Appendix B).

Evaluation of solids data indicated that suspended solids accounted for approximately 58 percent of the total residue in the headwater area (Figures 10 and 11). This relationship was used to calculate a value of 260 mg/L for the Mississippi River, which is within the range observed for data collected at Thebes, IL (Appendix B). Seasonal trends in total solids were not apparent, but suspended solids tended to be lower from late summer to mid-winter (August through January).

Limited discharge data were available for the project area, but data from the Morehouse and Rives sites may be used to describe general trends in runoff. In general, minimum discharge values were observed during the period August through November, although values at Rives were quite variable (Figure 12). Periods of lower discharge correlated with observations of lower concentrations.

Total and dissolved iron values were assessed to describe surface- and well-water concentrations to evaluate potential changes in concentrations associated with changing source water to Big Oak Tree State Park. With the exception of anomalous data, which were not included in the data analysis, concentrations in the surface waters were relatively similar to concentrations in well water (Figures 13 and 14), and higher concentrations in wells occurred primarily in Pemiscot County (Figure 15). In general, lower concentrations were observed in the late summer (August) and through mid-winter (January). Concentrations were mostly <1 mg/L and 3 mg/L, for dissolved and total iron, respectively.

Distribution of concentrations of total phosphorus, nitrate and nitrite nitrogen, organic nitrogen, ammonia, total Kjeldahl nitrogen, conductivity, and total alkalinity by water sources are presented in Figures 16-22. Total phosphorus concentrations for each water source are depicted in Figure 16. Concentrations in surface waters (STORET and NAWQA data) ranged from 0.026 to 0.89 mg/L with a mean value of 0.206 mg/L, and from 0.12 to 3.01 mg/L with a mean value of 0.684 mg/L in groundwater (wells from STORET and Mississippi and New Madrid Counties). Groundwater concentrations were more variable than surface-water concentrations. Median values of total phosphorus were 0.21 and 0.44 mg/L for surface water and groundwater, respectively. Nitrate concentrations were compiled were similar between water sources except for some elevated values observed in Mississippi County (Figure 17). In general, mean groundwater concentrations were greater than mean surface-water concentrations, but median values for groundwater (0.22 mg/L) were lower than median values for surface waters (0.31 mg/L). Limited data for concentrations of organic nitrogen indicated that the mean concentration in groundwater was higher than for surface water, but median values were lower as observed for nitrate concentrations (Figure 18). Distribution of ammonia nitrogen values indicated that surface-water values were lower than groundwater values, and median values were lower than mean values with most values less than 0.5 mg/L (Figure 19). Concentrations of total Kjeldahl nitrogen were available for surface waters and were generally less than 0.5 mg/L, but observations at NAWQA stations in the mid-1990s indicated occasional elevated concentrations between 1.5 and 3.5 mg/L (Figure 20). When mean and median values for nitrogen species (nitrate, ammonia, and organic nitrogen) are summed and compared between surface water and groundwater, mean groundwater concentrations are

approximately 3.9 mg/L and greater than mean surface-water concentrations of approximately 1.3 mg/L. However, comparison between summed median values are quite comparable (0.6 and 0.7 mg/L for surface water and groundwater, respectively).

Conductivity and total alkalinity data were also compared between water sources, but different methods for measuring conductivity make comparisons difficult. For example, data in STORET included field measurements and laboratory measurements while groundwater data from NRCS was reported as field measurements (Figure 21). In general, mean and median field measurements were lower than lab measurements (except for groundwater medians) and comparable between water sources. Data from groundwater sites in STORET and New Madrid County were the most variable. Total alkalinity data were only available from STORET. Mean and median groundwater values (near 200 mg/L as $CaCO_3$) were nearly twice surface-water values (near 110 mg/L as $CaCO_3$), although groundwater values were more variable (Figure 22).

Spreadsheet Analyses

Results of the spreadsheet analyses are summarized in Tables 12 and 13. All outputs are included in Appendix C, and results are summarized in Figures 23-30. In all scenarios, there was a net retention or removal of material from the water column, indicating that the basins do retain material. The expected net retention varied for each constituent between scenarios and basins; however, a general pattern was discernible. In general, Scenario 3, with the project alternative (avoid and minimize), yielded results similar to existing conditions with no flooding (Scenario 1). The project as authorized (Scenario 2) resulted in lower retention than Scenarios 1 and 3 but greater retention than Scenarios 4 and 5 (extreme and moderate high flows, respectively). Greater differences in net retention were observed for nitrogen and sediment. Relatively minor differences were observed between scenarios for organic carbon.

Sensitivity analyses using different export coefficients and concentrations in Scenarios 2 and 3 resulted in very little differences in the percent material retained. High and low retention factors applied to all scenarios resulted in very little difference between scenarios in net retention.

Evaluation of Project Impacts on Water Quality of the Mississippi River

Potential impacts on the water quality of the Mississippi River are summarized as percent decreases in material loading to the river relative to a moderate high flow event (Scenario 5) and with the alternative project (Scenario 3) in Table 14. In both Scenarios 5 and 3, the percent decrease in the material load for each constituent evaluated was 0.1 percent or less. This is consistent with water balances conducted for the project that indicated a ratio of

basin water (22,840 cfs/day) to Mississippi River water with basin water (22,840 cfs/day + 4,000,000 cfs/day) equal to 0.0057. These values are indicative of a moderate high flow event.

There is a potential for a reduction in the transport of material from the study area to the Mississippi River with a change in the flooding period to early winter with the project in place. This change in hydrology should reduce the transport of particulate material from fallow agricultural lands, although an increase in soluble material could occur with inundation. Conversely, a reduction in the backwater flooding of Mississippi River water would result in a decrease in the retention of material from the river that would be processed during flooding. Based on the above water and material balance, it seems reasonable that the change in material processing with and without the project would not be discernible.

Evaluation of Potential Changes in Pesticide Usage on Water Quality

Based on information provided by the University of Missouri Delta Research and Extension Service, it is estimated that 95 percent or more of the corn in the project area will be treated with atrazine at a rate of approximately 2 lb active ingredient per acre (ai/acre). Post-emergence application will be applied to approximately 75 percent and pre-emergence treatment rates will be between 1 and 2 lb ai/acre. About 50 percent of the land receiving pre-emergence treatments will likely receive a second application between 0.5 and 1.5 lb ai/acre. Farmers use arithmetic to keep total atrazine applications below 2.5 and 2 lb ai/acre on a single application.

The literature review indicated that the potential contamination to water resources from atrazine application to corn and corn/soybean rotation is rather limited (Appendix D). The primary concern appears to be the relationship between application time and precipitation frequency. The worse scenarios for surface-water contamination are high flow events immediately following application. Groundwater concentrations appear to be the highest during low runoff precipitation events in which high atrazine rates are applied year after year at the same location. However, due to the type of soil associations prevalent in the study area, infiltration or percolation of pesticides should be of minor importance.

Public drinking supplies in Southeast Missouri (Boothill region) have little or no record of contamination from pesticides.[1] Well-water samples collected from public drinking supplies in the region have had two instances of pesticide detection, one which was attributed to contamination of the community drinking well with a lake.[1] The lake has been sampled and found positive to pesticide contamination and so has the well.

[1] Personal Communication. Terry Timmons, 1999, Missiouri Department of Natural Resources, Jefferson City, MO.

In general, pesticide concentrations were relatively low in the study area. The samples were for wells, and all surface samples were below the drinking water quality criteria for pesticides (Table 15). The USDA NRCS 1997-1999 well-water data showed that all pesticide samples were below detection and thus below the drinking water standards. Data are presented in Appendix B. Several pesticide concentrations, although given the nondetect (ND) flag, showed apparent concentration, a value that either was estimated by the analyst or the blank was higher that the sample analysis.

Table 16 shows pesticides in surface runoff, either dissolved in water or in the particulate form, at the Morehouse station of the NAWQA study. All the values are lower than the drinking water quality criteria for pesticides. Figures 31-39 show pesticides found at a greater frequency (more than eight times) than those at the Morehouse station (Table 16). Simazine, a corn herbicide used moderately in the project area, maximum concentration did not exceed the drinking water standards. Prometon, a triazine herbicide, was detected in multiple samples but at all times was below the drinking water standards. Atrazine, a corn herbicide used in the project area, was detected in multiple samples at the Morehouse station, and the values were over the drinking water standards in more than two-thirds of the samples. Maximum atrazine concentration was around 20 μg/L. The degradation product of atrazine (diethyl atrazine) was also detected in the NAWQA study with maximum values below 0.7 μg/L. Propoxur, Permethrin, DCPA, Silvex, and Tebuthiuron were detected in the study but were very close to the detection level and lower than the drinking water standard (if a standard is available for the pesticide).

Evaluation of Potential Impacts to Big Oak Tree State Park

Results of a hypothetical mass balance used to assess potential impacts at Big Oak Tree State Park are summarized in Table 17. Groundwater values were assumed to be lower for all constituents evaluated, and the percent change between water sources becomes a factor of concentration differences if the percentage of material retained by the park is considered to be the same for each source of water. As a result, the change in mass available to the site was estimated as 20 percent for nitrogen, 25 percent for phosphorus, 50 percent for dissolved organic carbon, and 99 percent for sediments. However, water quality assessments indicated very little differences in nitrogen and phosphorus concentrations in surface water and groundwater (Figures 16-20). Equal or higher concentrations of nitrogen and, in particular, phosphorus could also be used in the estimates, resulting in a net gain of these nutrients. For example, using a higher concentration of total phosphorus for groundwater (e.g. 0.4 mg/L, which is well within the range of observations) would result in a net gain of 100 percent of the phosphorus supplied by surface waters. The increase in mass would be primarily in the dissolved form as opposed to both dissolved and particulate (e.g. sediment-bound) forms in the surface water. These are estimates based on approximated concentrations and do not account for seasonal variations in concentrations.

Iron was identified as the major metal of concern and the potential for toxicity was specifically identified as the concern. Iron concentrations were similar for surface water and well water, and the change in source water would not alter concentrations currently provided to the site. The major difference would be in the form of iron available in the groundwater and the surface water. Typically, iron in groundwater is predominately in the reduced state (Fe^{2+}, ferrous iron) since the water is void of dissolved oxygen (anaerobic) and in the oxidized state (Fe^{3+}, ferric iron) in surface waters that are oxygenated unless isolated by stratification. The reduced form of iron is potentially toxic to plants via oxidation of reduced iron in the soil at the oxidized root zone and the formation of a ferric coating or plaque that may inhibit the uptake of required nutrients (Gambrell and Patrick 1978; Taylor, Crowder, and Rodden 1984). Development of these conditions in wetlands is possible and can influence species distribution (Talbot and Etherington 1987), yet some species are more tolerant to high ferrous concentrations than others in the same community (Snowden and Wheeler 1993). Taylor, Crowder, and Rodden (1984) observed maximum formation of iron plaque coincident with increased concentrations of Fe^{2+} and pH values between 3 and 4.6. Although plaque formation occurred at iron concentrations as low as 5 to 10 mg/L, there was no plaque formation when the iron was in the Fe^{3+} form and pH was greater than 4.6. The later (oxidized iron and pH > 4.6) are more likely conditions in Big Oak Tree State Park. In a survey of flora of Big Oak Tree State Park, Oskins Doolen (1984) provided a list of plants that was compared to plants used in the study by Snowden and Wheeler (1993). Although a bottomland hardwood is not a fen, and flora species would be expected to be different, several species were observed in both systems and genera common to both spanned the range of 'very tolerant,' 'semi-tolerant,' 'moderately sensitive,' and 'very sensitive' clusters used by the authors. A ferrous iron concentration of 3.8 mg/L was used as the control and concentrations of 10, 25, 50, 75, and 100 mg/L of ferrous iron were used in the study. In general, *Carex* spp. (sedges), *Phalaris*, and *Ranunculus* (buttercup) were considered to be very tolerant to semi-tolerant, and red clover (introduced) and goose grass and *Rumex* sp. were moderately sensitive to very sensitive. Most of the iron toxicity information in the literature describes grasses, shrubs, and rice; information on adult trees was not available.

4 Discussion

In general, water quality is indicative of basins that are dominated by agricultural activities. General trends observed included low to moderate nitrogen concentrations, relatively high phosphorus concentrations, moderate to high organic carbon concentrations, and low to moderate sediment concentrations. Increased concentrations of these constituents likely occur associated with runoff events. Extreme values were most frequently observed at point sources in the study area. Limited data precluded detailed statistical analyses of spatial and temporal trends, but plots of data from a variety of sites and collection periods allowed some empirical assessment. Seasonal trends were observed for some constituents, but concentration ranges were relatively narrow, suggesting that annual trends were not apparent. Spatial trends were mostly associated with point source and well-water data.

Potential impacts of the project on the water quality of the Mississippi River appear to be minimal based on the assumptions used in the spreadsheet analyses. Although this approach does not adequately describe the processing of material by each land cover, the use of relative function factors for each land cover type does allow the evaluation of scenarios with and without the project for a relative comparison since the same function factors are applied in each scenario. While more detailed process information would improve the application, the relatively low volume of water in the basin relative to the volume of water in the Mississippi River results in little impact from a mass balance perspective. Comparisons of concentrations in the two sources of water indicated relatively similar concentrations, suggesting that changes in concentrations associated with the project are not likely to be discernible. Mitsch et al. (1979) observed very little differences in spatial patterns on different floodplain sites during flooding in the Kankakee River basin in northeastern Illinois, supporting the assumption of equal concentrations in a floodway during inundation.

National studies have shown that pesticides and their transformation products are commonly present at low concentrations in groundwater beneath agricultural areas, and only seldom at concentrations that exceed water quality standards. For the five multi-state studies carried out to date, which focused mainly on agricultural areas, the proportions of sampled wells with pesticide detection ranged from 4 percent (nationwide, rural domestic wells) to 62 percent (corn-and-soybean areas of the northern mid-continent, post-planting) (USEPA 1994, USGS 1995). Pesticide concentrations were 1 μg/L or less in over 95 percent of the wells sampled during these studies (USEPA 1994).

Missouri water quality studies including the Management Systems Evaluation Areas, Agricultural Systems for Environmental Quality, and Mississippi Embayment programs have shown that surface-water impacts from pesticide runoff are a major concern in the state. In 1994, 10 public drinking water supplies (surface water) received notices of violation (NOV) for exceeding the Maximum Contaminant Level (MCL) for atrazine (3 μg/L) (Smith, Blanchard, and Johnson 1999). Two northern Missouri public drinking water supplies received NOVs during 1997-1998. However, there was little evidence of atrazine contamination in public drinking waters in the area, suggesting that pesticide contamination of wells is minimal. However, occasional observations of high concentrations in surface waters indicate contamination to shallow wells is possible. It is a feasible assumption that, through adoption of best management practices (BMPs), in combination with monitoring efforts, atrazine contamination to water resources can be maintained below the MCL.

The potential increase in corn acreage due to the project is 5,800 acres, or 4.4 percent of the project area (133,000 acres). A 5 percent increase in corn should not change the behavior of pesticide application and runoff, so conditions expected for increased acreage should be similar to existing conditions. The change in soybean practices from current conditions to a higher yield/longer season soybeans should not have significant water quality impacts due to the longer season. If current practices are maintained, future potential impacts should be similar to those observed in similar or current agricultural settings.

Double crops and the increase in double cropping should not have a major water quality impact in the area. Double cropping could help in minimizing the runoff potential in early spring by providing a crop cover for those months with high runoff potential. The availability of parts of the project area for double cropping should be a function of the winter storage requirements and the start of the planting season for the first crop in the double crop cycle. Pesticide requirements in double crops could be higher, but herbicide use might decrease because the first crop can decrease the germination of weeds harmful to the second crop, the cultivation in between the two crops, and the rotation of crops.

Although operation of the pumping stations to remove floodwaters may occur during the early part of the growing season, increased runoff of atrazine is expected to be minimal with anticipated application rates and practices. Exceptions could occur in very well drained areas, but since these areas comprise only a minor portion of the area, adverse impacts are not expected to occur. As mentioned previously, the use of BMPs in more vulnerable areas should be considered to further reduce the potential for adverse impacts.

The evaluation of potential impacts to Big Oak Tree State Park indicates that the nutrient supply to the system may vary by about ±20 percent for nitrogen and between -25 and +100 percent for phosphorus with a change in source water from floodwater to groundwater. The range of change is dependent upon the concentration used in the estimates (see Table 17). Because the park is not inundated with floodwater every year, the net change in nitrogen and phosphorus to the park could be considerably less since the controlled hydrology would supply these nutrients more frequently than floodwaters. Additionally, variability

in surface-water and groundwater data was relatively high, and the actual change in supply of nitrogen and phosphorus is more likely to be lower if similar concentrations exist in the two sources. More profoundly, the supply of organic carbon and sediments to the site is estimated to decrease by 50 and 99 percent, respectively. These may be underestimates since the supply of particulate organic carbon will likely decrease by 80 to 100 percent, i.e., there are no organic particulates in well water. However, since bottomland hardwoods typically export dissolved organic carbon, there may be a net reduction in carbon export that would be beneficial to receiving waters. Nutrient supply associated with sediment transport will also be greatly decreased with the exclusive use of well water. However, comparison of median values in well water and surface waters indicated that the supply of nutrients from either source may be similar, but nutrients from the well water would be dissolved. The availability and retention of sediments and sediment bound nutrients to the site were not evaluated.

While the change in supply of material to the site is a potential for impact, concentrations/masses necessary for continued viability are not known and not easily determined. Also, the contribution of material during extreme events has not been evaluated and the impact of the loss of contributions during these episodic events is not clear. The impacts of potential reductions in particulate organic carbon and sediment supply to Big Oak Tree State Park are not easily quantified and comparison to internal sources is not possible with the available data.

Larson et al. (1992) suggested that the return of hydrologic regimes similar to conditions prior to extensive agricultural development (e.g., 75 years ago) was critical to the survivability of the park. If indeed the restoration of hydrology is critical and can be accomplished with supplemental groundwater, the opportunity to offset the potential reductions in sediments using surface water when available, in lieu of well water, should be considered.

The potential for iron toxicity to adversely impact the flora of Big Oak Tree State Park is considered to be minimal. Evaluation of available iron data for groundwater indicated that elevated concentrations (e.g., >10 mg/L) occurred in Pemiscot County and not in the immediate vicinity of the park. Furthermore, the introduction of reduced (ferrous, Fe^{2+}) iron via artesian wells will result in a rapid oxidation to the ferric form which will be retained on the soil surface and not formed at the oxidized root zone. There will be a potential for accumulation and subsequent burial of the ferric form in a limited area around each well. The potential for iron deposition would be reduced with the use of surface water when available. The rapid oxidation of iron would also allow for collection or accumulation if the area around the well included a small detention basin or rock layer.

5 Conclusions

Water quality with the project alternative should be similar to conditions that exist during periods of no flooding. Material processing should be similar between these two scenarios as well. The basin most likely retains or removes material from headwaters and floodwaters; this process is maximized during low-water periods (Scenario 1) and is comparable with the alternative project (Scenario 3). There is likely a considerable difference in the amount of material processed (amount increases with flow) but the relative processing between Scenario 1 and Scenario 3 yielded similar results.

Impacts to the water quality of the Mississippi River with the proposed or alternative project in place are not expected to be discernible due to the overwhelming volume of water in the Mississippi River relative to floodwater volume in the project area.

The impact of pesticides, atrazine in particular, on public groundwater resources is expected to be minimal. Furthermore, the impacts to shallow water resources, i.e., private wells, are also expected to be minimal. A greater potential exists for atrazine contamination to surface waters. The optimal method for reducing this likelihood is the implementation of BMPs. It is a feasible assumption that through adoption of BMPs, in combination with monitoring efforts, the atrazine contamination to water resources can be maintained below drinking water standards. A 5 percent increase in corn should not change the behavior of pesticide application and runoff, so conditions expected for increased acreage should be similar to existing conditions.

The restoration of historical, or a more typical, hydrology to Big Oak Tree State Park is likely one of the most critical processes for the recovery and sustainability of the park. However, potential impacts to Big Oak Tree State Park with the project may occur with the use of groundwater as the only supplement since there is a potential for a decrease in the supply of sediments. These potential decreases may be offset with the use of surface water when available. A comparison to bottomland hardwood areas in the St. Johns Basin (which have been isolated from floods) should be considered to further identify the potential for impacts at Big Oak Tree State Park. Dissolved iron concentrations were similar for surface-water and well-water sites, and the change in source water would not alter concentrations currently provided to the site.

References

1. Adamus, P. R., Stockwell, L. T., Clairain, Jr., E. J., Morrow, M. E., Rozas, L. P., and Smith, R. D. (1991). "Wetland evaluation technique (WET), Volume I: Literature review and evaluation rationale," Technical Report WRP-DE-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2. Ashby, S. L., Sturgis, T. C., Price, C. B., Brannon, J. M., and Pennington, J. C. (1991). "Water quality studies in the upper watershed of Steele Bayou, Mississippi," Miscellaneous Paper EL-91-23, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

3. Beaulac, M. N., and Reckhow, K. H. (1982). "An examination of land use – Nutrient export relationships," *Wat. Res. Bull*. 18(6):1013-1024.

4. Brinson, M. M., Bradshaw, H. D., and Kane, E. S. (1984). "Nutrient assimilative capacity of an alluvial floodplain swamp," *J. of Applied Ecology* 21, 1041-1057.

5. Conner, W. H., and Day, J. W., Jr. (1991). "Leaf litter decomposition in three Louisiana freshwater forested wetland areas with different flooding regimes," *Wetlands* 11(2):303-312.

6. Cooper, A. B. (1990). "Nitrate depletion in the riparian zone and stream channel of a small headwater catchment," *Hydrobiologia* 202, 13-26.

7. DeLaune, R. D., Boar, R. R., Lindau, C. W., and Kleiss, B. A. (1996). "Denitrification in bottomland hardwood wetland soils of the Cache River," *Wetlands* 16(3):309-320.

8. Dortch, M. S. (1996). "Removal of solids, nitrogen, and phosphorus in the Cache River wetland," *Wetlands* 16(3):358-365.

9. Gambrell, R. P., and Patrick, W. H., Jr. (1978). "Chemical and microbiological properties of anaerobic soils and sediments." *Plant Life in Anaerobic Environments.* D. D. Hook and R. M. M. Crawford, eds., Ann Arbor Sci. Pub. Inc., Ann Arbor, MI, 375-423.

10. Harris, L. D., and Gosselink, J. G. (1990). "Cumulative impacts of bottomland hardwood forest conversion on hydrology, water quality, and terrestrial wildlife." *Ecological Processes and Cumulative Impacts: Illustrated by Bottomland Hardwood Wetland Ecosystems*. J. G. Gosselink, L. C. Lee, and T. A. Muir, eds., Lewis Publishers, Inc., Chelsea, MI.

11. Holmes, R. R., Jr. (1993). "Sediment transport in the lower Missouri and the central Mississippi Rivers – June 26 through September 14, 1993," *Floods in the Upper Mississippi River Basin, 1993*, USGS Circular 1120-1.

12. Kadlec, R. H. (1997). "An autobiotic wetland phosphorus model," *Ecol. Eng*. 8, 145-172.

13. Killpack, S. C., and Buchholz, D. (1993). "Nitrogen in the environment: Nitrogen replacement value of legumes," Water Quality Initiative Publication WQ277, University of Missouri, Columbia, MO.

14. Kleiss, B. A. (1996). "Sediment retention in a bottomland hardwood wetland in eastern Arkansas," *Wetlands* 16(3), 321-333.

15. Larson, B. D., Journet, A. R. P., and Taylor, S. H. (1992). "Distribution and age classes of tree species in the cypress forest of Big Oak Tree State Park, Southeast Missouri," Technical Report, Missouri Department of Natural Resources.

16. Lindau, C. W., DeLaune, R. D., and Pardue, J. H. (1994). "Inorganic nitrogen processing and assimilation in a forested wetland," *Hydrobiologia* 277, 171-178.

17. Lowrance, R., Todd, R., Fail, J., Jr. Hendrickson, O., Jr. Leonard, R., and Asmussen, L. (1984). "Riparian forests as nutrient filters in agricultural watersheds," *Bioscience* 34(6), 374-377.

18. Luckey, R. R., and Fuller, D. L. (1984). "Water resources of the southeast lowlands, Missouri," USGS Water-resources investigations report 84-4277.

19. Mitsch, W. J, Rust, W., Behnke, A., and Lai, L. (1979). "Environmental observations of a riparian ecosystem during flood season," Research Report 142, UILU-WRC-79-0142, University of Illinois at Urbana-Champaign, Water Resources Center, Urbana, IL.

20. Oskins Doolen, W. S. (1984). "The vascular flora of Big Oak Tree State Park, Mississippi County, Missouri," Master's Thesis, Southern Illinois University.

21. Peterjohn, W. T., and Correll, D. L. (1984). "Nutrient dynamics in an agricultural watershed: Observations on the role of a riparian forest," *Ecology* 65(5), 1466-1475.

22. Pinay, G., and Decamps, H. (1988). "The role of riparian woods in regulating nitrogen fluxes between the alluvial aquifer and surface water: A conceptual model," *Regulated Rivers: Research and Management* 2, 507-516.

23. Raisin, G. W. (1996). "The role of small wetlands in catchment management: Their effect on diffuse agricultural pollutants," *Int. Revue ges. Hydrobiol*. 81(2), 213-222.

24. Smith, M. B., Blanchard, P. E., and Johnson, G. S. (1999). *Atrazine Management and Water Quality*. Manual 167, Extension Publications, University of Missouri-Columbia, Columbia, MO.

25. Snowden, R. E. D., and Wheeler, B. D. (1993). "Iron toxicity to fen plants," *J. Ecology* 81, 35-46.

26. Talbot, R. J., and Etherington, J. R. (1987). "Comparative studies of plant growth and distribution in relation to waterlogging, XIII, The effect of Fe2+ on photosynthesis and respiration of *Salix caprea* and *S. cinerea* ssp. *oleifolia*," *New Phytologist* 105, 575-583.

27. Taylor, G. J., Crowder, A. A., and Rodden, R. (1984). "Formation and morphology of an iron plaque on the roots of *Typha latifolia* L.grown in solution culture," *Amer. J. Bot*. 71(5), 666-675.

28. University of Missouri. (1996). "Missouri soil fertility and fertilizers research update, 1995," Agronomy Miscellaneous Publication 96-03.

29. U.S. Environmental Protection Agency. (1999). "Drinking water regulations and health advisories," Office of Water, (http://www.epa.gov/OST/Tools/dwstds.html) , accessed on 5/25/99.

30. _____. (1994). "Database documentation for the National Pesticide Survey," Section Three.

31. U.S. Geological Survey. (1995). "Pesticides in ground water," U.S. Geological Survey Fact Sheet FS-244-95, http://water.wr.usgs.gov/ pnsp/gw/.

32. Weller, D. E., Jordan, T. E., and Correl, D. L. (1998). "Heuristic models for material discharge from landscapes with riparian buffers," *Ecological Applications* 8(4), 1156-1169.

Table 1. Land Cover Area in the New Madrid Floodway

Cover	Acres at 275 ft	Acres at 280 ft	Acres at 282 ft	Acres at 285 ft	Acres at 290 ft	Acres at 300 ft
Cypress/ Tupelo	6.7	43.3	88.9	171	496.1	692
Scrub/ Shrub marsh	0	1.4	3.1	10.8	80.3	364.4
Pasture	1.7	4.3	7.7	9.9	101.8	340.7
Open Water	0.9	9.8	121.9	170.8	592.2	687
Marsh	0	0.1	0.1	0.2	1.6	87.1
Sandbar	0	0	0	0	0	0.2
Cotton	0.8	1.9	2.6	5.2	82.8	288.6
Cotton/ Soybean	0	0	0.1	6.5	224.8	643.7
Soybean	18	53.6	320.9	1500.4	11450.7	52577.2
Soybean/ Corn	0	0.1	0.3	2.4	6	77.9
Corn	0.1	0.6	0.9	3.7	72.4	8211.8
Herbacious Vegetation	2.9	20.6	48.3	113.1	836.7	3881.1
Bottomland/ Hardwood	42	158.8	244.5	375.5	3345	7221.2
Riparian	0.1	0.1	0.1	0.1	0.5	0.5
River	0	0	1.1	1.1	2.2	4.4
Total	73.1	294.6	840.4	2370.8	17293.3	75077.7

Table 2. Land Cover Area in St Johns Bayou

Cover	Acres at 275 ft	Acres at 280 ft	Acres at 282 ft	Acres at 285 ft	Acres at 290 ft	Acres at 300 ft
Cypress/ Tupelo	15.32	80.22	101.09	250.07	485.21	686.78
Pasture	3.38	18.18	22.92	52.73	102.57	176.21
Open Water	8.95	30.89	44.74	112.71	144.21	274.41
Marsh	0	0	0	0	2.05	82.98
Cotton	6.77	10.89	16.58	62.97	90	416.29
Cotton/ Soybean	0	0	0	2.45	54.48	765.66
Soybean	18.42	153.73	292.73	1743.91	5842.45	35842.36
Soybean/ Corn	0	0	0	0.01	1.44	24.42
Corn	0.04	0.37	0.46	1.22	78.44	7497.07
Herbacious Vegetation	6.81	25.06	41.2	194.02	589.25	3742.00
Bottomland Hardwood	28.3	171.72	258.37	739.84	2316.24	5105.42
Riparian	21.29	34.25	47.27	71.34	147.63	372.1
River	0	0	0	0	0	12.56
Total	109.29	525.29	825.38	3231.26	9853.96	54998.24

Table 3. Hydrologic scenarios for the New Madrid Floodway and St. Johns Bayou

Scenario	Elevation (ft NGVD)*	Volume (acre-ft)	Water Source
New Madrid Floodway			
1 Baseline	275	388	Headwater
2 Authorized			
Season 1	285	6707	Headwater
Season 2	280	1098	Headwater
3 Avoid/Minimize			
Season 1	282	2190	Headwater
Season 2	280	1098	Combined
4 Extreme Flood	300	515089	Combined
5 Moderate Flood	290	45305	Combined
St. Johns Bayou			
1 Baseline	275	644	Headwater
2 Authorized			
Season 1	285	7298	Headwater
Season 2	280	1692	Headwater
3 Avoid/Minimize			
Season 1	282	3080	Headwater
Season 2	280	1692	Combined
4 Extreme Flood	300	310381	Combined
5 Moderate Flood	290	34372	Combined

* Elevation in feet referenced to the National Geodetic Vertical Datum.

Table 4. Wetland function factors for land covers and selected water quality constituents*

Land Cover Type	Effect on floodwater	References	Function Factor
Cypress/Tupelo	Nitrogen – Removes	(4, 5, 7,16)	-.8
	Phosphorus – Removes	(5, 8,12)	-.4
	Carbon – Converts POC to DOC and exports DOC	(2)	.8
	Sediment – Removes via sedimentation	(1)	-.8
Scrub/Shrub Marsh	Nitrogen – Removes – similar to Cypress/Tupelo		-.8
	Phosphorus – Removes similar to Cypress/Tupelo		-.4
	Carbon – Converts POC to DOC and exports DOC		.8
	Sediment – Removes via sedimentation		-.8
Marsh	Nitrogen – Removes similar to Cypress/Tupelo		-.8
	Phosphorus – Removes similar to Cypress/Tupelo		-.4
	Carbon – Converts POC and DOC and exports DOC		.8
	Sediment – Removes via sedimentation		-.8
Bottomland Hardwood	Nitrogen – Removes – similar to Cypress/Tupelo		-.8
	Phosphorus – Removes – similar to Cypress/Tupelo		-.4
	Carbon – Converts POC to DOC and Exports DOC		.8
	Sediment – Removes via sedimentation		-.8
Riparian	Nitrogen – Removes	(5, 22)	-.8
	Phosphorus – Removes via filtration		-.5
	Carbon – Removes via filtration		-.5
	Sediment – Removes via filtration		-.5
Sandbar	Nitrogen – Removes via filtration		-.2
	Phosphorus – Removes via filtration		-.2
	Carbon – Removes via filtration		-.2
	Sediment – Removes via filtration		-.2
Open Water	Nitrogen – Removes via sedimentation, denitrification		-.3
	Phosphorus – Removes via sedimentation		-.2
	Carbon – Removes via sedimentation		-.2
	Sediment – Removes via sedimentation		-.2
River	Nitrogen – Removes via sedimentation, denitrification		-.2
	Phosphorus – Removes via sedimentation		-.1
	Carbon – Removes via sedimentation		-.1
	Sediment – Removes via sedimentation		-.1

* POC = Particulate organic carbon.
DOC = Dissolved organic carbon.

Table 5. Summary and ranking of export values for nitrogen and phosphorus for selected land cover types

Cover Type	N export (kg/ha/yr)	Rank	P export (kg/ha/yr)	Rank
Forest	2.5	1	0.2	1
Nonrow crops (small grains)	6.5	4	0.7	2
Pasture	5.0	2	0.75	3
Mixed agriculture	14	6	0.8	4
Urban	5.1	3	1.1	5
Row crops	8.5	5	2.3	6

Table 6. Watershed mass balances (Peterjohn and Correll 1984)

Season	Precipitation ($100m^3$/ha)		Nitrate-N (kg/ha)	Ammonium-N (kg/ha)	Organic-N (kg/ha)	Total-P (kg/ha)	Ortho-P (kg/ha)	Organic-C (kg/ha)
Bulk Precip.								
Spring	25.4		1.20	1.12	3.39	0.284	0.058	13.9
Summer	29.7		1.26	0.785	1.43	0.068	0.025	11.2
Fall	18.9		0.95	0.540	0.11	0.055	0.035	5.7
Winter	26.5		1.36	0.385	1.67	0.029	0.019	5.6
Ann. Mean	108 ± 21.8		4.79 ± 1.18	2.59 ± 0.56	6.01 ± 1.15	0.810 ± 0.278	N/A	43.1 ± 6.81
Fertiliz.	N/A		10.1	14.9	42.2	12.5	12.5	N/A
Disch.	Slow	Fast						
Spring	6.26	0.69	0.532	0.197	0.58	0.251	0.116	153
Summer	3.20	0.80	0.428	0.089	1.04	0.926	0.111	9.23
Fall	0.62	0.04	0.007	0.007	0.03	0.010	0.007	0.4
Winter	11.5	0.12	1.53	0.060	0.39	0.104	0.055	3.6
Ann. Mean	29.6± 14	5.0 ± 4.5	4.15 ± 3.06	0.434 ± 0.124	9.17 ± 10.2	1.72 ± 1.47	0.622 ± 0.407	58.2 ± 61.3

Table 7. Watershed mass balances for the riparian zone of an agricultural watershed (Lowrance et al. 1984)

	Inputs*	Inputs	Inputs	Outputs*	Outputs	Outputs	Outputs
	Precipitation	Subsurface	N Fixation	Streamflow	Denitrification	Above ground storage	Balance Input – (Output+ Storage)
N	12.2	29.0	10.6	13.0	31.5	51.8	- 44.5
P	3.5	2.1		3.9		3.8	- 2.1
Ca	5.2	47.4		31.8		40.3	- 18.5
Mg	1.4	18.1		15.0		6.1	- 1.6
K	3.9	19.5		22.2		18.6	- 17.4
Cl	21.4	83.5		97.0			7.9

* All units are kg/ha/year.

Table 8. Monthly discharge (1000 cfs) for the Mississippi River at Hickman, KY

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1943-1974													
Max	1249	1426	1343	1368	1193	910	839	634	428	429	689	894	713
Min	127	252	325	395	390	287	209	152	130	112	112	140	284
	530	635	764	790	661	498	389	265	224	231	282	391	471
S.D.	270	266	251	231	208	184	147	86	79	84	125	205	102
1975-1998													
Max	1090	1007	1357	1333	1396	924	853	866	608	666	723	886	733
Min	145	215	379	453	262	130	120	116	134	136	190	229	301
Mean	537	601	800	779	684	536	411	320	282	301	383	531	513
S.D.	193	201	248	257	299	217	145	141	108	122	138	208	105

Table 9. Summary statistics for selected water quality constituents

stat	inst_dchrg	org_nitro	dis_ammon	tot_ammon	dis_no3	no3no2	tphos	dphos	ophos	tot_res	nf_res	to_carb	do_carb	sus_sedi	dis_iron
Surface Water Only - No Mississippi River															
Mean	**1347.2195**	**0.413778**	**0.066286**	**0.49197**	**0.02586**	**0.60607**	**0.2066**	**0.06557**	**0.0662979**	**247.27**	**31.8421**	**2.11304**	**3.9844**	**143.167**	**78.138**
Std Dev	2361.5278	0.277589	0.086642	0.50753	0.02516	0.767	0.1311	0.0371	0.0333583	268.72	27.8314	1.72969	1.6105	101.752	105.5
Std Err	260.78712	0.041381	0.014645	0.06498	0.00425	0.09985	0.0189	0.00541	0.0048658	37.629	6.38495	0.25503	0.2401	16.9587	14.631
95 % CI	518.89434	0.083399	0.029763	0.12999	0.00864	0.19988	0.0381	0.01089	0.0097946	75.581	13.4146	0.51366	0.4838	34.4286	29.373
99 % CI	687.97709	0.111416	0.039961	0.17288	0.01161	0.26596	0.0508	0.01454	0.0130754	100.77	18.3802	0.68597	0.6464	46.1954	39.151
n	82	45	35	61	35	61	48	47	47	51	19	46	45	36	52
Min	**71**	**0.2**	**0.015**	**0.01**	**0.01**	**0.01**	**0.05**	**0.01**	**0.01**	**41**	**2**	**0.2**	**0.7**	**45**	**3**
Max	**14000**	**1.6**	**0.469**	**2.5**	**0.101**	**3.16**	**0.64**	**0.16**	**0.16**	**1990**	**78**	**7.6**	**7.6**	**451**	**470**
Mississippi River at Hickman, KY															
Mean			**0.121111**	**0.03**			**0.144**			**451.4**	**192**				
Std Dev			0.159173	0			0.1385			177.71	173.031				
Std Err			0.053058	0			0.0438			56.196	54.717				
95 % CI			0.122354	--			0.0991			127.13	123.781				
99 % CI			0.178046	--			0.1423			182.64	177.838				
n			9	1			10			10	10				
Min			**0.01**	**0.03**			**0.03**			**218**	**26**				
Max			**0.48**	**0.03**			**0.49**			**740**	**512**				

Table 10. Surface water quality data summary*

Stat	Org N	D. NH_3	T. NH_3	D. NO_3	NO_3/ NO_2	TP	DOC	TOC	T. Res	NF. Res	Sus. Solid
Head water											
Mean	0.41	0.07	0.49	0.03	0.61	0.21	3.98	2.11	247	32	143
Min	0.2	0.02	0.01	0.01	0.01	0.05	0.7	0.2	41	2	45
Max	1.6	0.47	2.5	0.10	3.16	0.64	7.6	7.6	1990	78	451
N	45	35	61	35	61	48	45	46	51	19	36
Std. Dev.	0.28	0.16	0.51	0.03	0.77	0.13	1.73	1.72	269	27.8	102
Miss. River											
Mean	0.12	0.03				0.14			451	192	
Min	0.01	0.03				0.03			218	26	
Max	0.48	0.03				0.49			740	512	
N	9	1				10			10	10	
Std. Dev.	0.16	0				0.14			178	173	

* Concentrations are in mg/L.

Org N = Organic nitrogen
DNH_3 = Dissolved ammonia
TNH_3 = Total ammonia
DNO_3 =Dissolved nitrate
NO_3/NO_2 = Nitrate/nitrite nitrogen
TP = Total phosphorus
DOC = Dissolved organic carbon
TOC = Total organic carbon
T. Res = Total residue
NF. Res = Nonfilterable residue
Sus. Solid = Suspended solids

Table 11. Recommended initial water quality concentrations

Water Source	Nitrogen mg/L	Phosphorus mg/L	Organic Carbon mg/L	Suspended Solids mg/L
Headwater	1.5	0.21	4	150
Combined	1.2	0.15	4	260

Table 12. Watershed Function expressed as % Net Removal – New Madrid Floodway

Scenarios	N	N	N	P	P	P	OC	OC	OC	Seds	Seds	Seds
	E*	H*	L*	E	H	L	E	H	L	E	H	L
1	49.0	86.4	8.6	27.8	86.8	9.2	16.5	87.3	9.8	55.8	87.3	9.8
2	23.7	83.6	7.5	16.3	84.1	8.5	13.2	84.8	9.7	33.3	85.1	9.7
3	39.2	85.8	8.5	23.3	86.2	9.1	15.8	86.7	9.8	47.8	86.9	9.9
4	12.3	82.0	6.9	10.4	82.3	7.8	10.8	82.9	9.6	17.5	82.9	9.8
5	12.5	81.9	4.5	10.2	82.4	5.8	11.1	83.7	8.6	24.6	83.8	9.0

Table 13. Watershed Function expressed as % Net Removal – St. Johns Bayou

Scenarios	N	N	N	P	P	P	OC	OC	OC	Seds	Seds	Seds
	E	H	L	E	H	L	E	H	L	E	H	L
1	47.6	86.6	8.9	28.6	86.9	9.4	11.9	87.3	9.8	45.8	87.3	9.8
2	26.9	83.9	7.4	18.1	84.4	8.4	10.9	85.1	9.7	35.7	85.3	9.7
3	41.9	85.9	9.0	24.8	86.1	9.4	17.3	86.5	9.9	44.6	86.5	9.9
4	11.8	81.9	6.5	10.1	82.1	7.4	14.5	82.8	9.6	17.4	82.9	9.8
5	17.5	82.5	5.1	12.9	83.0	6.3	22.2	84.1	8.5	29.0	84.2	8.7

* E is the expected value for the watershed function
* H is the high retention value for the watershed function
* L is the low retention value for the watershed function

Table 14. Potential impacts on nutrient and sediment loading interactions between the Mississippi River and the study area with the project

Relationships between River Basins at 290 ft (Scenario 5) and an average discharge in the Miss. River of 800 K (cfs) for 5 days					
Basin / Constituent	Volume (acre-ft)	Conc (mg/L)	Expected Retention	Net Retained (kg)	Impact on Miss. River (% Decrease)
Nitrogen					
Miss. River	7,933,844	1.2	1	11744810.75	
New Madrid Floodway	45,305	1.5	0.125	10479.2096	0.09
St. Johns Bayou	34,372	1.5	0.175	11130.51427	0.09
Phosphorus					
Miss. River	7,933,844	0.2	1	1957468.458	
New Madrid Floodway	45,305	0.15	0.102	855.1035032	0.04
St. Johns Bayou	34,372	0.15	0.129	820.4779094	0.04
Organic Carbon					
Miss. River	7,933,844	4	1	39149369.15	
New Madrid Floodway	45,305	4	0.111	24814.76833	0.06
St. Johns Bayou	34,372	4	0.222	37652.93972	0.10
Sediments					
Miss. River	7,933,844	260	1	2544708995	
New Madrid Floodway	45,305	150	0.246	2062308.449	0.08
St. Johns Bayou	34,372	150	0.29	1844485.223	0.07
Relationships between River Basins at Best Case with Project at 282 ft (Scenario 3) and an average discharge in the Miss. River of 700 K (cfs) for 5 days					
Basin / Constituent	Volume (acre-ft)	Conc (mg/L)	Expected Retention	Net Retained (kg)	Impact on Miss. River (% Decrease)
Nitrogen					
Miss. River	5,455,000	1.2	1	8075271.283	
New Madrid Floodway	2190	1.5	0.392	1588.556116	0.02
St. Johns Bayou	3080	1.5	0.419	2388.015375	0.03
Phosphorus					
Miss. River	5,455,000	0.2	1	1345878.547	
New Madrid Floodway	2190	0.15	0.233	94.42183038	0.01
St. Johns Bayou	3080	0.15	0.248	141.3431535	0.01
Organic Carbon					
Miss. River	5,455,000	4	1	26917570.94	
New Madrid Floodway	2190	4	0.158	1707.427662	0.01
St. Johns Bayou	3080	4	0.173	2629.286618	0.01
Sediments					
Miss. River	5,455,000	260	1	1749642111	
New Madrid Floodway	2190	150	0.478	193706.5876	0.01
St. Johns Bayou	3080	150	0.446	254189.7034	0.01

Table 15. Human-health criteria for pesticides in drinking water

Compound	Type (2)	Human-Health Criteria		Reference
		µg/L	Type of Criterion	
AMIDES				
2, 6-Diethylaniline	DP (alachlor)	-	--	--
Acetochlor	H	--	--	--
Alachlor	H	2	MCL	USEPA (1999)
Metolachlor	H	70	HA-L	USEPA (1999)
Napropamide	H	--	--	--
Pronamide	H	50	HA-L	USEPA (1999)
Propachlor	H	90	HA-L	USEPA (1999)
Propanil	H	--	--	--
CARBAMATES				
3-Hydroxycarbofuran	DP (carbofuran)	--	--	--
Aldicarb	I	7	draft MCL (3)	USEPA (1999)
Aldicarb sulfone	DP (aldicarb)	7	draft MCL (3)	USEPA (1999)
Aldicarb sulfoxide	DP (aldicarb)	7	draft MCL (3)	USEPA (1999)
Butylate	H	350	HA-L	USEPA (1999)
Carbaryl	I	700	HA-L	USEPA (1999)
Carbofuran	I	40	MCL	USEPA (1999)
EPTC	H	--	--	--
Methiocarb	I	--	--	--
Methomyl	I	200	HA-L	USEPA (1999)
Molinate	H	--	--	--
Oxamyl	I	200	MCL	USEPA (1999)
Pebulate	H	--	--	--
Propham	H	100	HA-L	USEPA (1999)
Propoxur	I	--	--	--
Thiobencarb	H	--	--	--
Triallate	H	--	--	--
CHLOROPHENOXY ACIDS				
2,4,5-T	H	70	HA-L	USEPA (1999)
2,4,5-TP (silvex)	H	50	MCL	USEPA (1999)
2,4-D	H	70	MCL	USEPA (1999)
2,4-DB	H	--	--	--
Dichlorprop	H	--	--	--
MCPA	H	10	HA-L	USEPA (1999)
MCPB	H	--	--	--
INITROANILINES				
Benfluralin	H	--	--	--
Ethalfluralin	H	--	--	--
Oryzalin	H	--	--	--
Pendimethalin	H	--	--	--
Trifluralin	H	5	HA-L	USEPA (1999)
ORGANOCHLORINES				
Chlorothalonil	F	15	RSD (10-5)	USEPA (1999)
Dacthal (DCPA)	H	--	--	--
Dacthal, mono acid	H	--	--	--
DDE, p,p'	DP (DDT)	1	RSD (10-5)	USEPA (1999)
Dichlobenil	H	--	--	--
Dieldrin	I	0.02	RSD (10-5)	USEPA (1999)
HCH, alpha	DP (lindane)	0.06	RSD (10-5)	USEPA (1999)
HCH, gamma (lindane)	I	0.2	MCL	USEPA (1999)
ORGANOPHOSPHATES				
Azinphos-methyl	I	--	--	--
Chlorpyrifos	I	20	HA-L	USEPA (1999)
Diazinon	I	0.6	HA-L	USEPA (1999)
Disulfoton	I	0.3	HA-L	USEPA (1999)
Ethoprop	I	--	--	--
Fonofos	I	10	HA-L	USEPA (1999)
Malathion	I	200	HA-L	USEPA (1999)
Methyl parathion	I	2	HA-L	USEPA (1999)
Parathion	I	--	--	--
Phorate	I	--	--	--
Terbufos	I	0.9	HA-L	USEPA (1999)

(Continued)

Table 15. (Concluded)

Compound	Type (2)	Human-Health Criteria		Reference
		µg/L	Type of Criterion	
PYRETHROIDS				
Permethrin, cis	I	--	--	--
TRIAZINES				
Atrazine	H	3	MCL	USEPA (1999)
Atrazine, deethyl	DP (atrazine)	--	--	--
Cyanazine	H	1	HA-L	USEPA (1999)
Metribuzin	H	100	HA-L	USEPA (1999)
Prometon	H	100	HA-L (4)	USEPA (1999)
Simazine	H	4	MCL	USEPA (1999)
URACILS				
Bromacil	H	90	HA-L	USEPA (1999)
Terbacil	H	90	HA-L	USEPA (1999)
UREAS				
Diuron	H	10	HA-L	USEPA (1999)
Fenuron	H	--	--	--
Fluometuron	H	90	HA-L	USEPA (1999)
Linuron	H	--	--	--
Neburon	H	--	--	--
Tebuthiuron	H	500	HA-L	USEPA (1999)
MISCELLANEOUS ACIDS				
Acifluorfen	H	10	RSD (10-5)	USEPA (1999)
Bromoxynil	H	--	--	--
Chloramben	H	100	HA-L	USEPA (1999)
Clopyralid	H	--	--	--
Dicamba	H	200	HA-L	USEPA (1999)
Dinoseb	H	7	MCL	USEPA (1999)
DNOC	H	--	--	--
Picloram	H	500	MCL	USEPA (1999)
Propargite	I	--	--	--
Triclopyr	H	--	--	--
MISCELLANEOUS				
Bentazon	H	200	HA-L	USEPA (1999)
Norflurazon	H	--	--	--

(1) Common chemical names.
(2) H = herbicide; I = insecticide; F = fungicide; DP = degradation product, with parent compound in parantheses.
(3) Value applies to sum of aldicarb, aldicarb sulfoxide, and aldicarb sulfone.
(4) Value is under review.

Note:
RSD (10-5), risk-specific dose at a cancer risk level of 1 in 100,000; HA-L Lifetime Health Advisory; MCL, maximum contaminant level.

Table 16. Pesticides in Surface Waters (NAQWA sites)

Date	Metolachlor	Alachlor	Benfluralin	Triallate	Propanil	Thiobencarb	Pendimethalin	Napropamide
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
04-04 1996								
05-21 1996				0.0010E				
06-19 1996				0.001	0.260E			
01-14 1997		0.002						
04-07 1997					0.0040E	0.0020E		
04-25 1997					0.0040E			
05-21 1997				0.001				
05-27 1997				0.001		0.0488E		
06-05 1997					0.0040E			
06-10 1997				0.001				
06-16 1997				0.001				
06-23 1997				0.001		0.0296E		
06-30 1997			0.0020E	0.001			0.0271	
07-14 1997	0.222		0.0020E		0.0040E	0.002		0.003
07-30 1997						0.0020E		
08-14 1997						0.0020E		

E - Estimated

Table 17. Mass balance for selected water quality constituents at Big Oak Tree State Park

Elevation (ft) / Constituent	Volume (acre-ft)	Headwater Concentration (mg/L)	Mass (kg)	Groundwater Concentration (mg/L)	Mass (kg)	Change in Mass	% Change
Nitrogen* (gw < sw)		1.5		1.2			**-20**
285	0		0		0	0	
287	21		38.859		31.0872	7.771801	
290	859		1589.518		1271.615	317.90367	
292	2364		4374.414		3499.531	874.88274	
Nitrogen (gw > sw)							**16.66667**
285	0	0.6	0	0.7	0		
287	21		15.5436		18.1342	-2.5906	
290	859		635.8073		741.7752	-105.9679	
292	2364		1749.765		2041.393	-291.6276	
Phosphorus (gw < sw)		0.2		0.15			**-25**
285	0		0		0	0	
287	21		5.181201		3.8859	1.2953002	
290	859		211.9358		158.9518	52.983945	
292	2364		583.2552		437.4414	145.81379	
Phosphorus (gw > sw)		0.2		0.4			**(+) 100**
285	0		0		0	0	
287	21		5.181201		10.3624	5.1812006	
290	859		211.9358		423.8716	211.93578	
292	2364		583.2552		1166.51	583.25516	
Organic Carbon		4		2			**-50**
285	0		0		0	0	
287	21		103.624		51.81201	51.812006	
290	859		4238.716		2119.358	2119.3578	
292	2364		11665.1		5832.552	5832.5516	
Sediments		260		2			**-99**
285	0		0		0	0	
287	21		6735.561		51.81201	6683.7488	
290	859		275516.5		2119.358	273397.15	
292	2364		758231.7		5832.552	752399.15	

* gw = groundwater; sw = surface water.

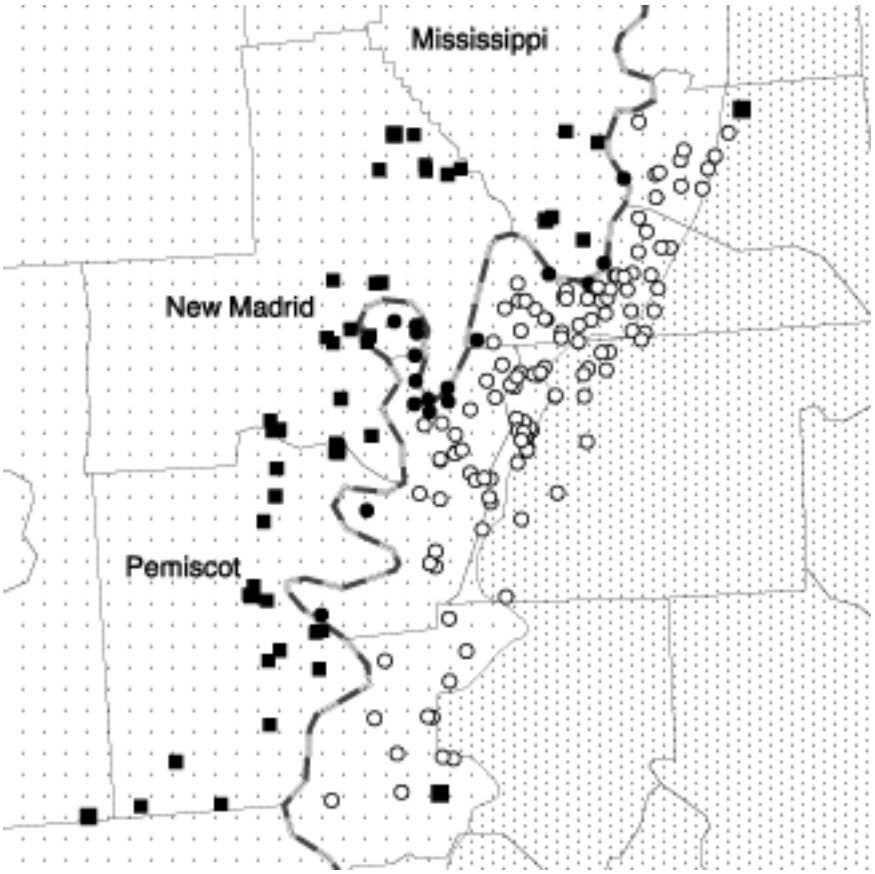


Figure 1. Stations for water quality data retrieved from STORET

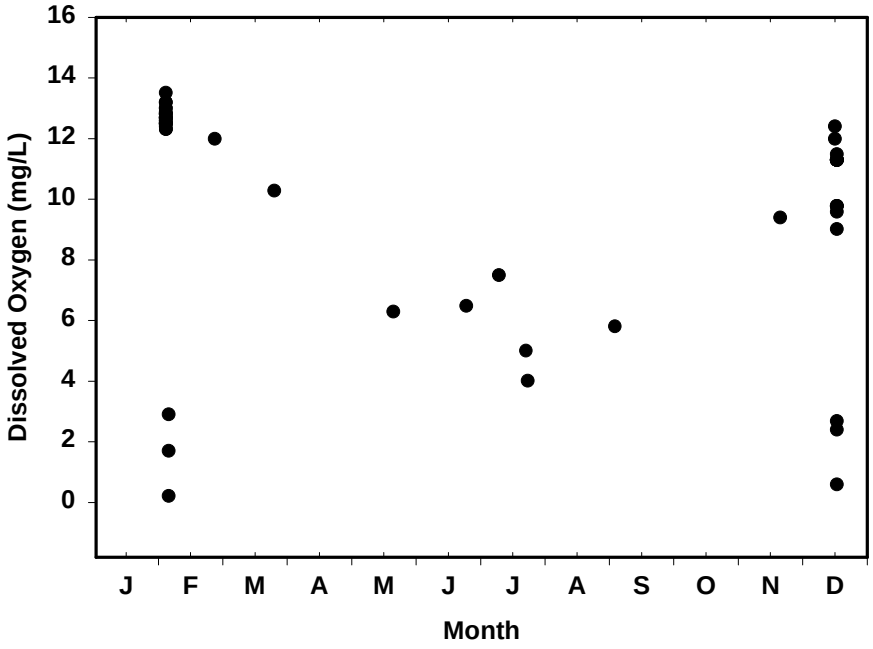


Figure 2. Dissolved oxygen concentrations.

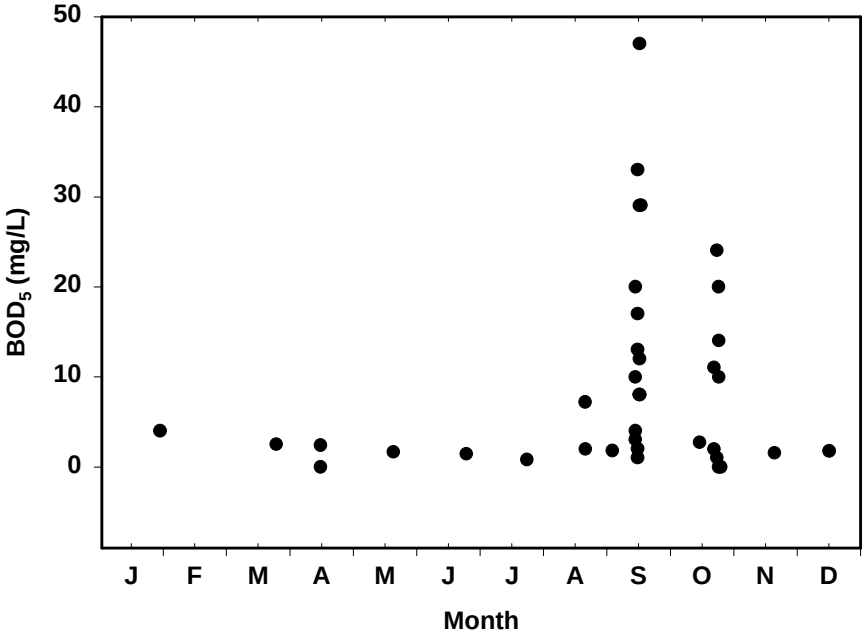


Figure 3. BOD_5 measurements.

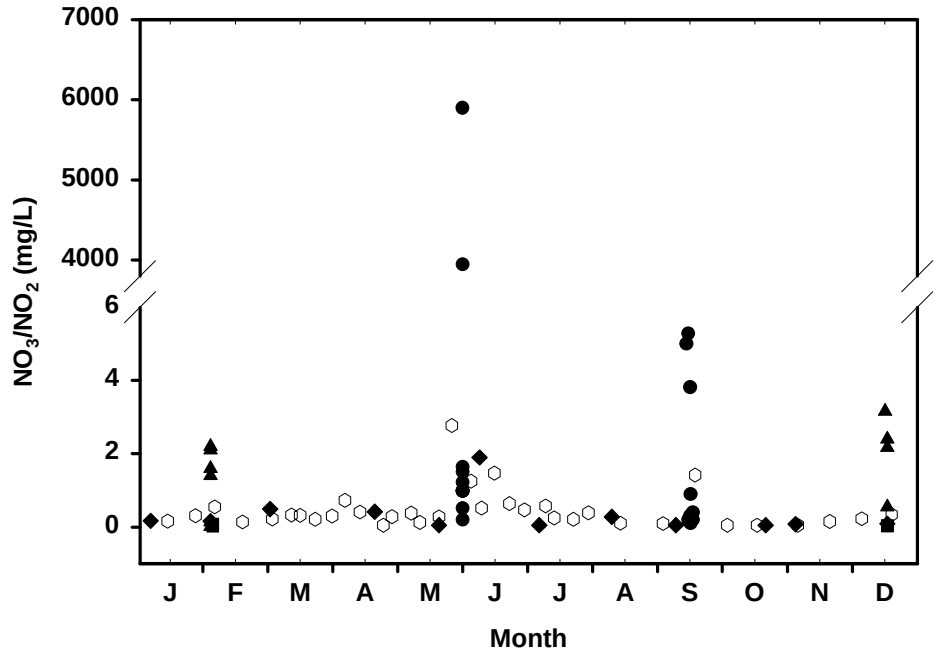


Figure 4. Nitrate/nitrite concentrations.

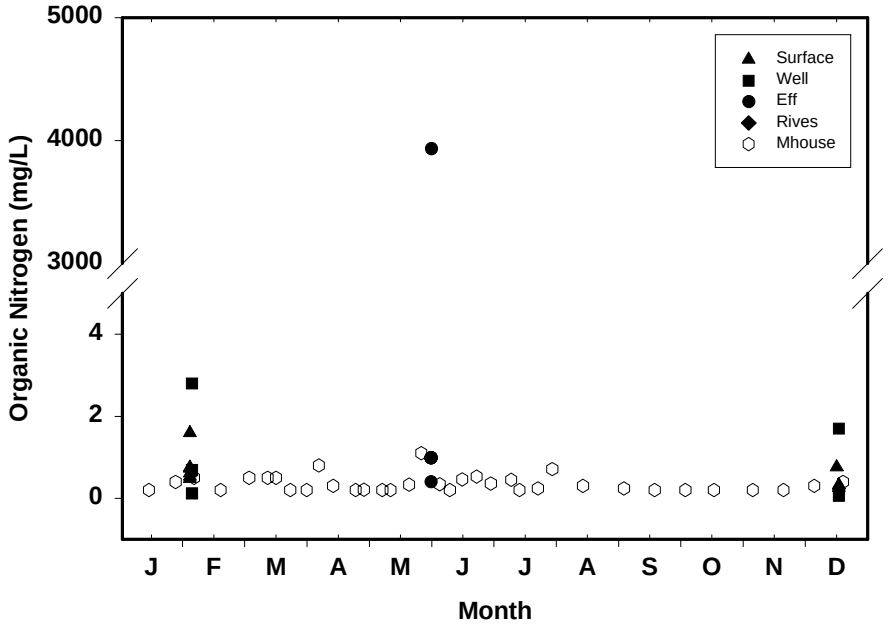


Figure 5. Organic nitrogen concentrations.

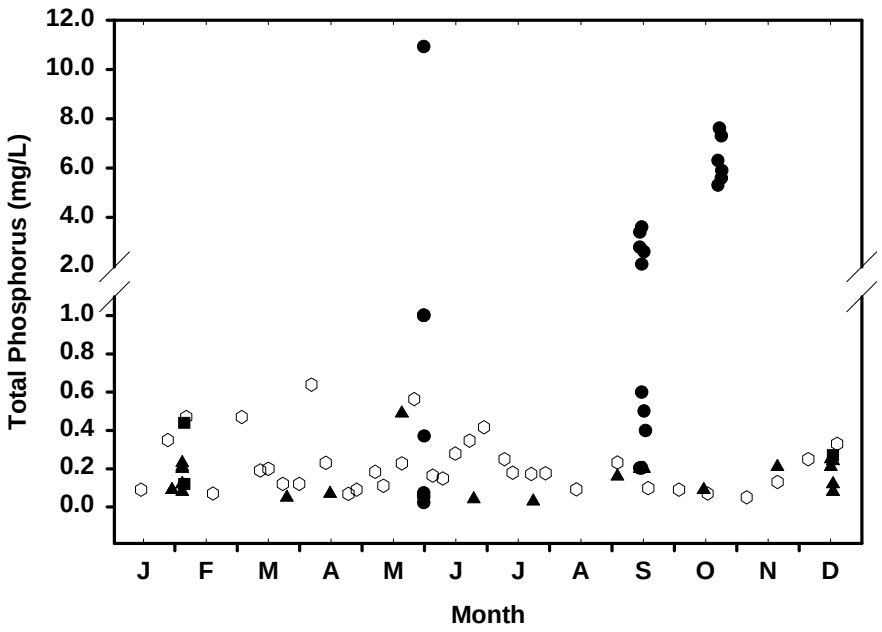


Figure 6. Total phosphorus concentrations.

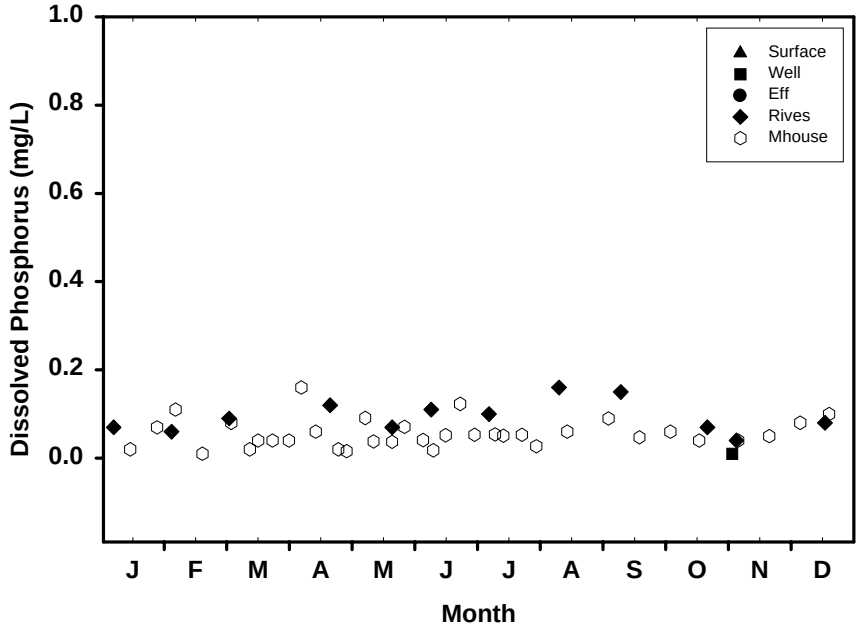


Figure 7. Dissolved phosphorus concentrations.

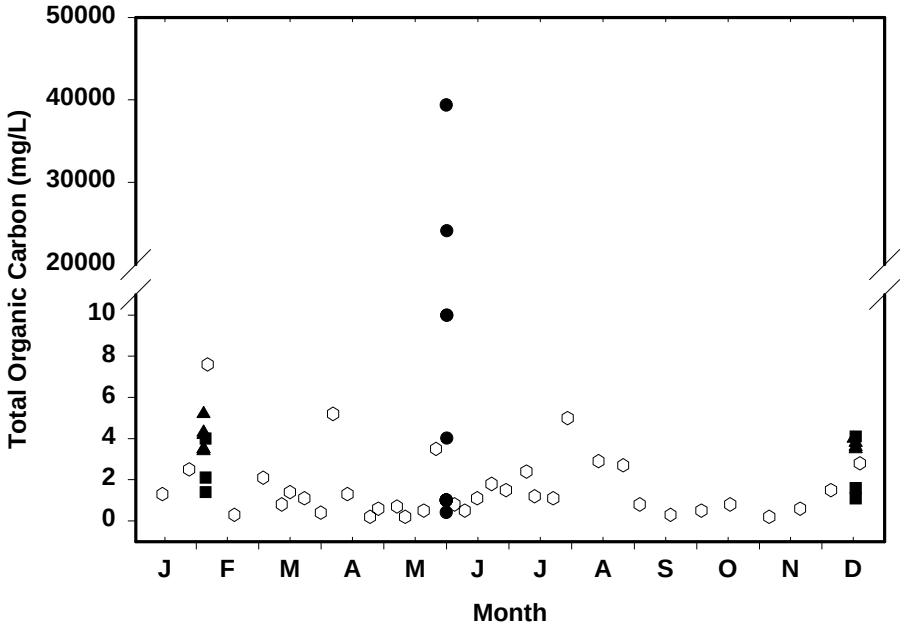


Figure 8. Total organic carbon concentrations.

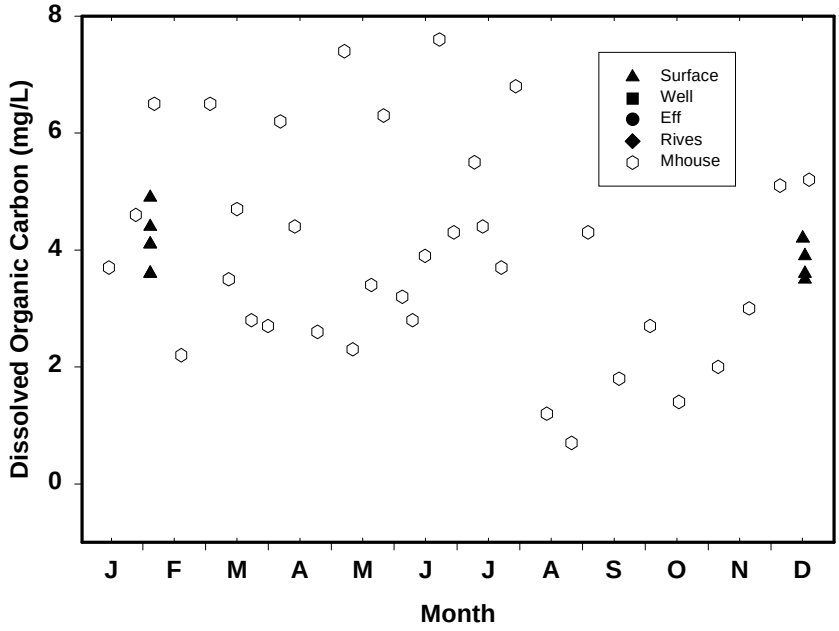


Figure 9. Dissolved organic carbon concentrations.

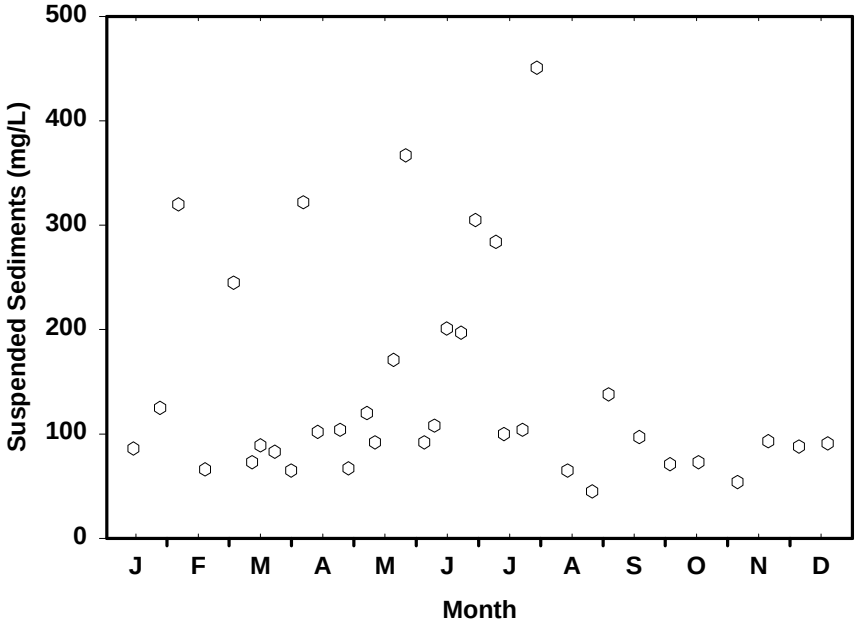


Figure 10. Suspended solids concentrations.

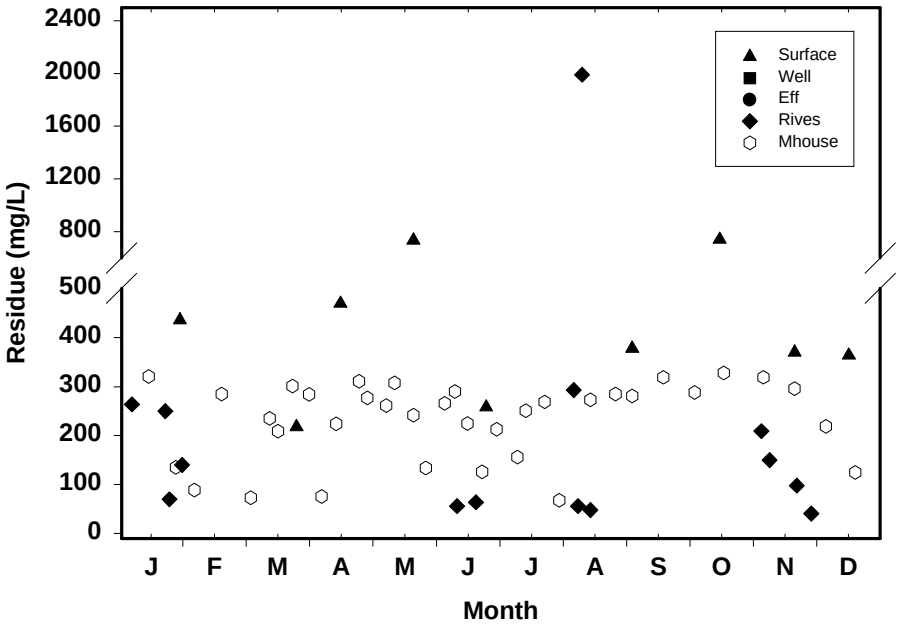


Figure 11. Residue concentrations.

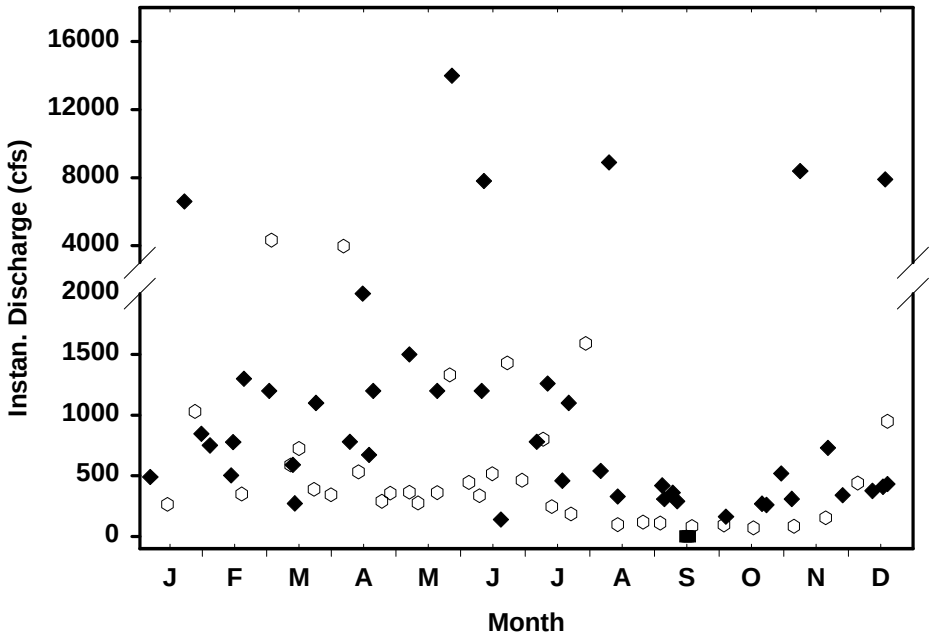


Figure 12. Instantaneous discharge measurements for Rives (◆) and Morehouse (○).

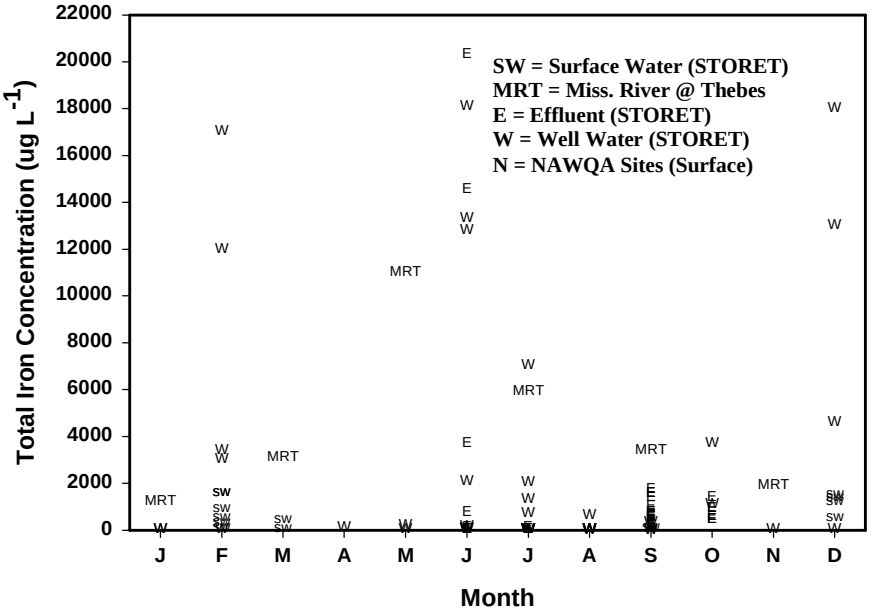


Figure 13. Total iron concentrations.

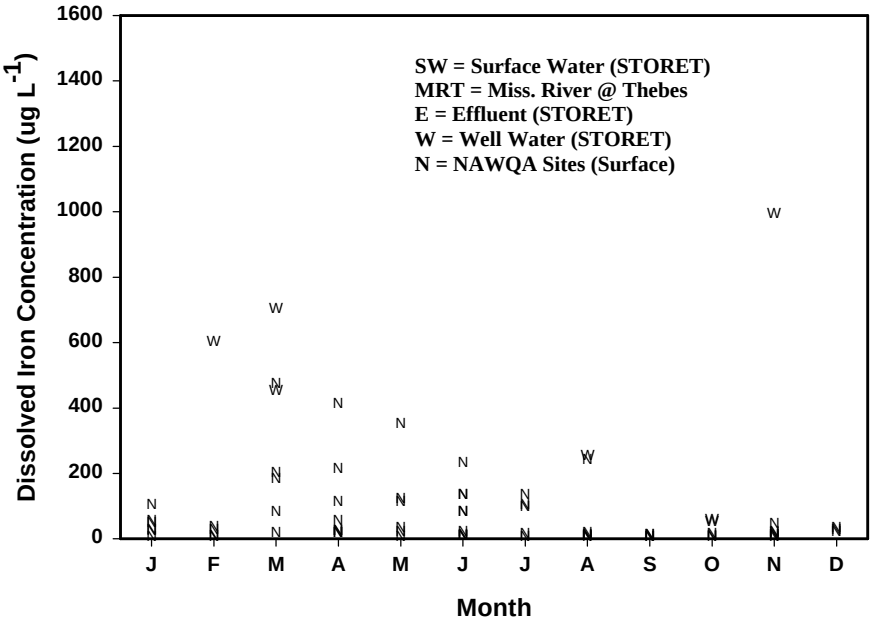


Figure 14. Dissolved iron concentrations.

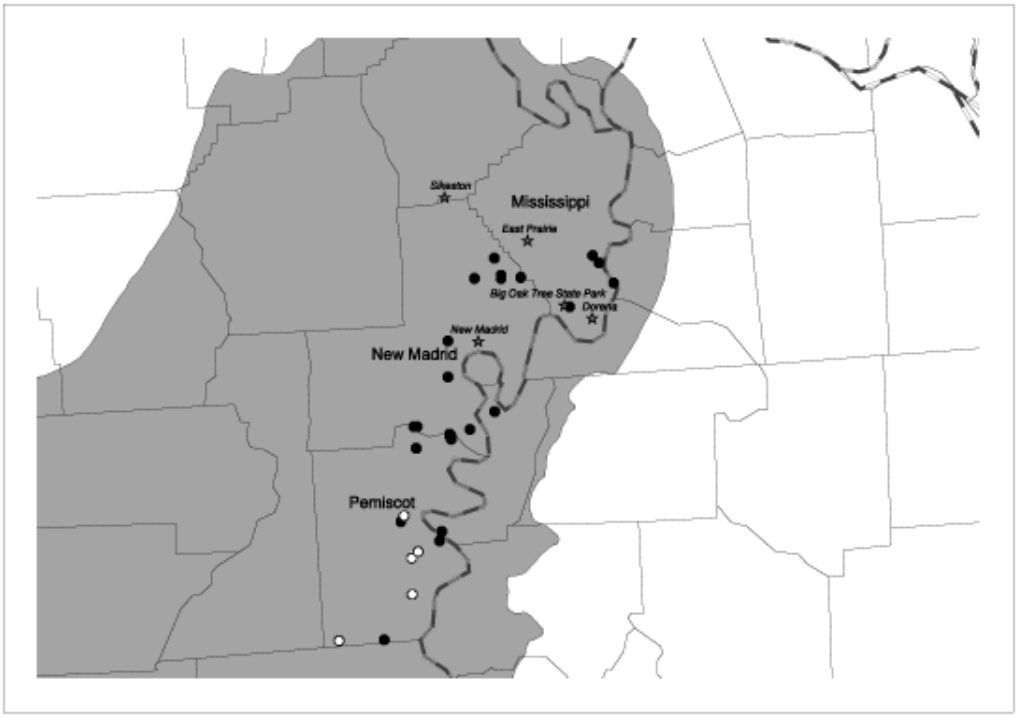
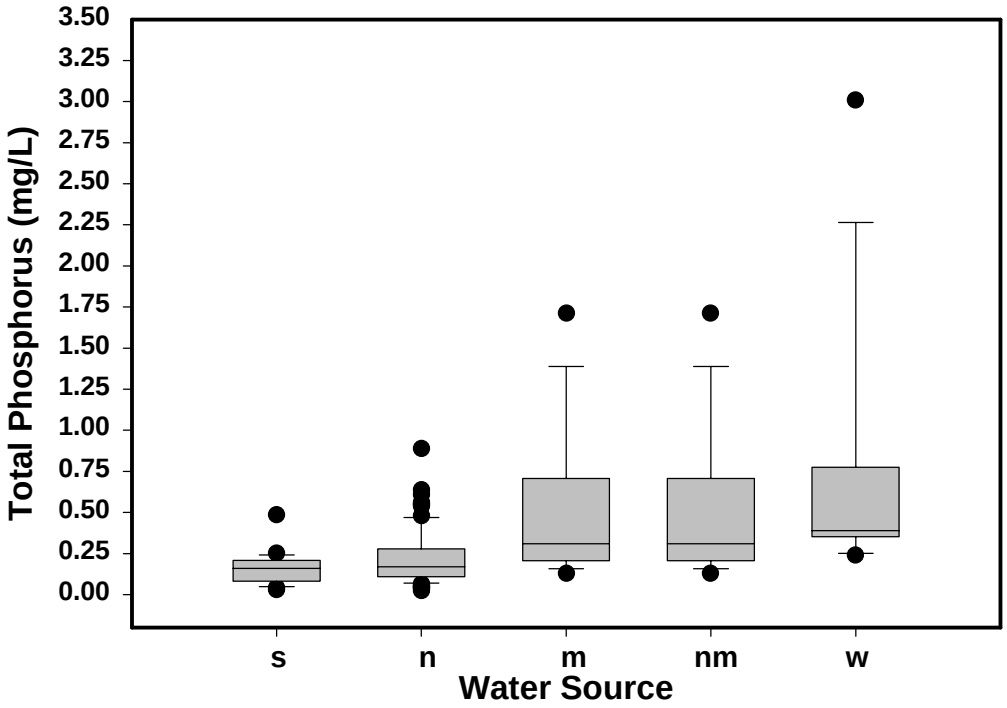


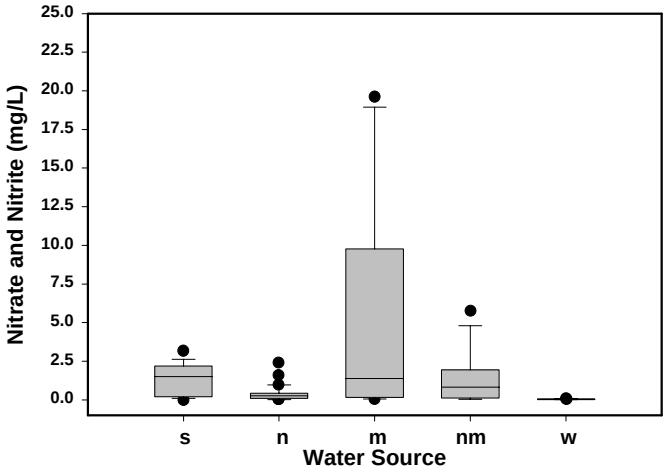
Figure 15. Distribution of iron concentrations in well water. Values greater than 3 mg/L are depicted with open circles.



s = surface water (STORET)
n = surface water (NAWQA)
m = well water (MS county)
nm = well water (New Madrid county)
w = well water (STORET)

surface water mean = 0.206
median = 0.167
groundwater mean = 0.684
median = 0.44

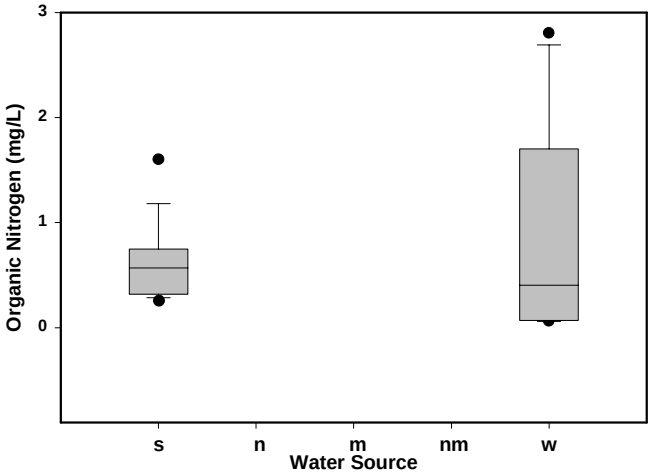
Figure 16. Distribution of total phosphorus concentrations by water source.



s = surface water (STORET)
n = surface water (NAWQA)
m = well water (MS county)
nm = well water (New Madrid cty)
w = well water (STORET)

surface water mean = 0.675
median = 0.31
groundwater mean = 2.47
median = 0.22

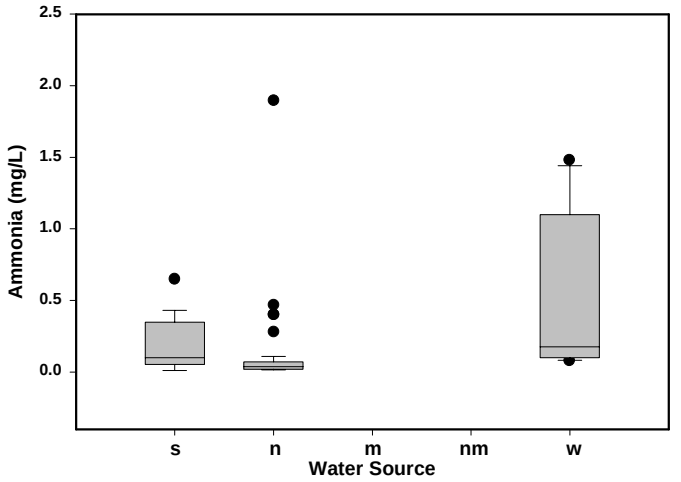
Figure 17. Distribution of nitrate and nitrite concentrations by water source.



s = surface water (STORET)
n = surface water (NAWQA)
m = well water (MS county)
nm = well water (New Madrid county)
w = well water (STORET)

surface water mean = 0.635
median = 0.57
groundwater mean = 0.907
median = 0.405

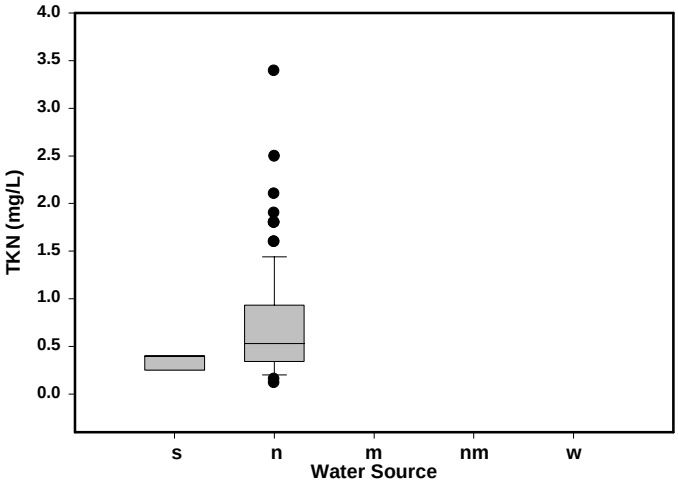
Figure 18. Distribution of organic nitrogen concentrations by water source.



s = surface water (STORET)
n = surface water (NAWQA)
m = well water (MS county)
nm = well water (New Madrid county)
w = well water (STORET)

surface water mean = 0.11
median = 0.047
groundwater mean = 0.52
median = 0.175

Figure 19. Distribution of ammonia concentrations by water source.



s = surface water (STORET)
n = surface water (NAWQA)
m = well water (MS county)
nm = well water (New Madrid county)
w = well water (STORET)

surface water mean = 0.713
median = 0.047
groundwater mean = n/a
median = n/a

Figure 20. Distribution of total Kjeldahl nitrogen concentrations by water source.

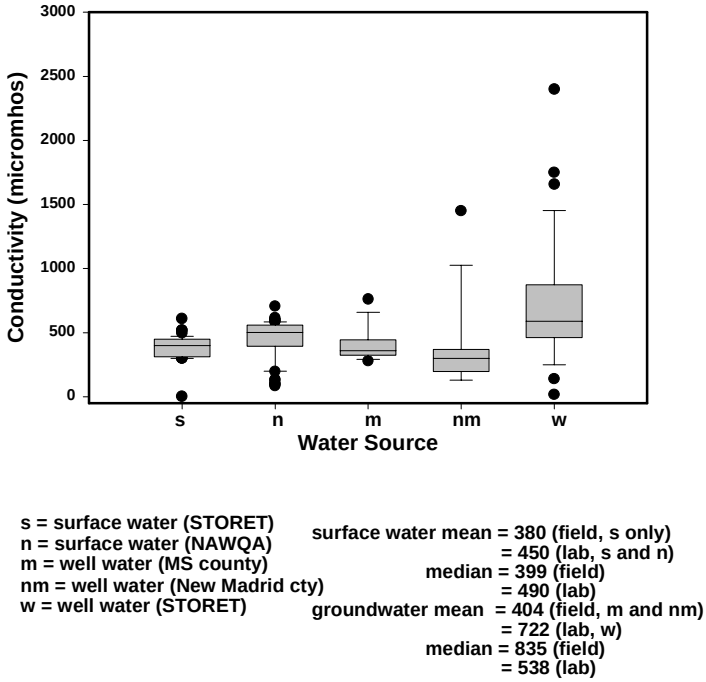


Figure 21. Distribution of conductivity values by water source.

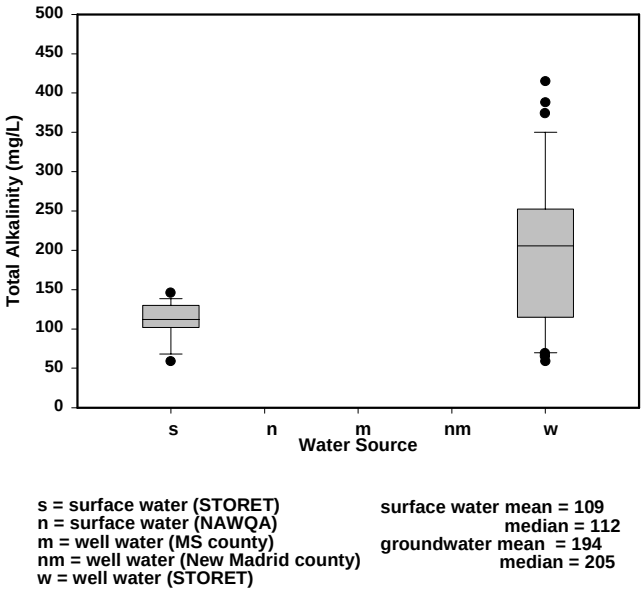


Figure 22. Distribution of total alkalinity values by water source.

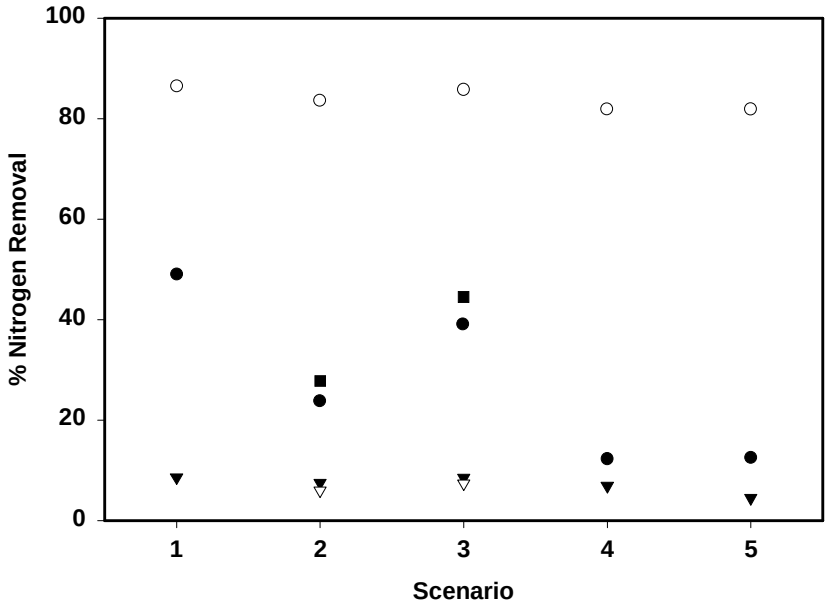


Figure 23. Nitrogen removal for the New Madrid Floodway.

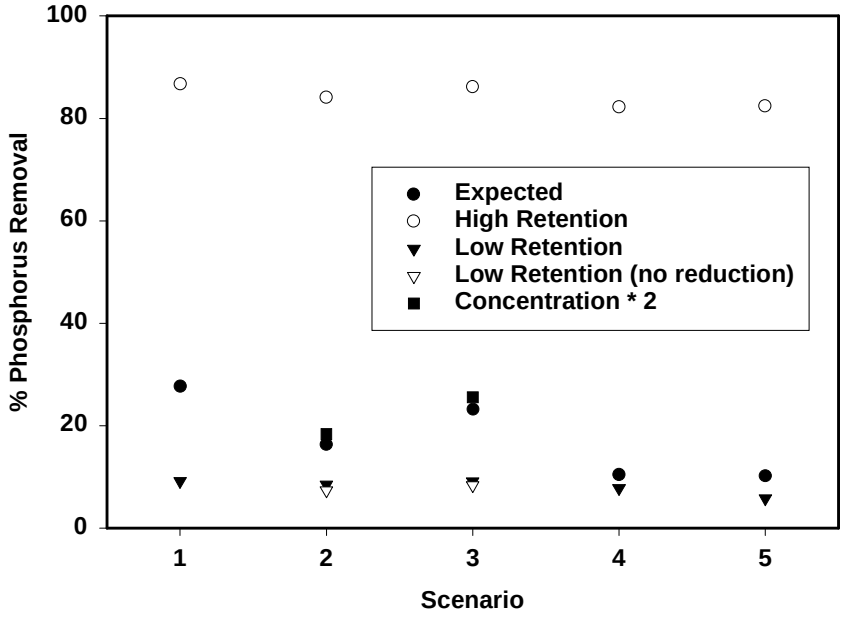


Figure 24. Phosphorus removal for the New Madrid Floodway.

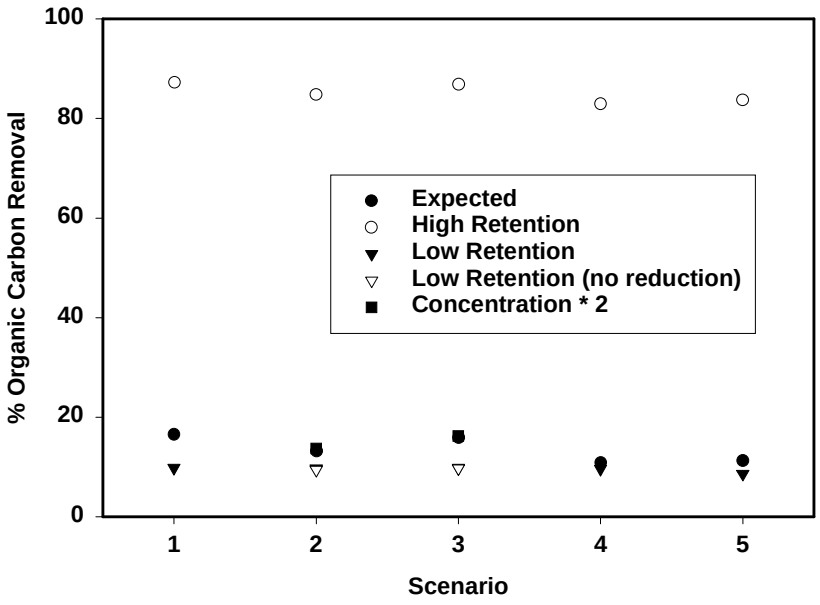


Figure 25. Organic carbon removal for the New Madrid Floodway.

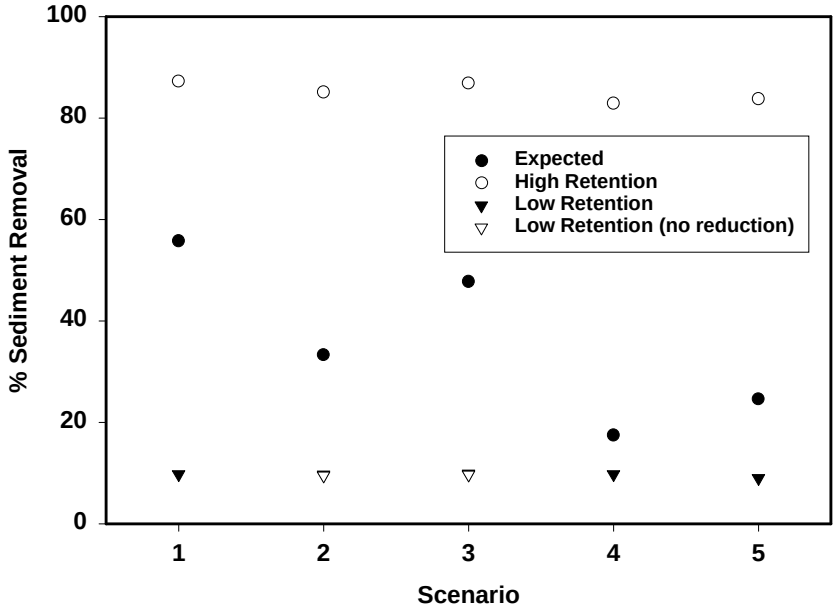


Figure 26. Sediment removal for the New Madrid Floodway.

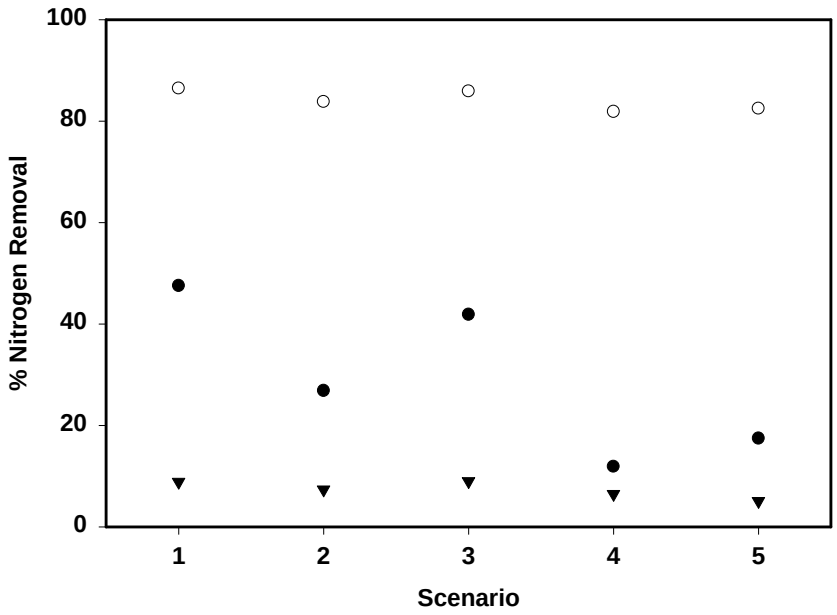


Figure 27. Nitrogen removal for St. Johns Bayou.

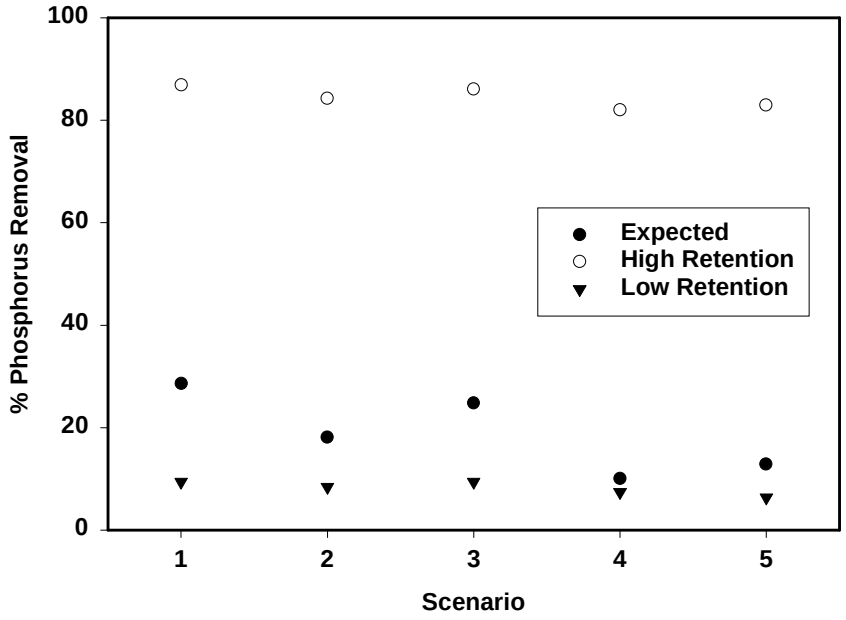


Figure 28. Phosphorus removal for St. Johns Bayou.

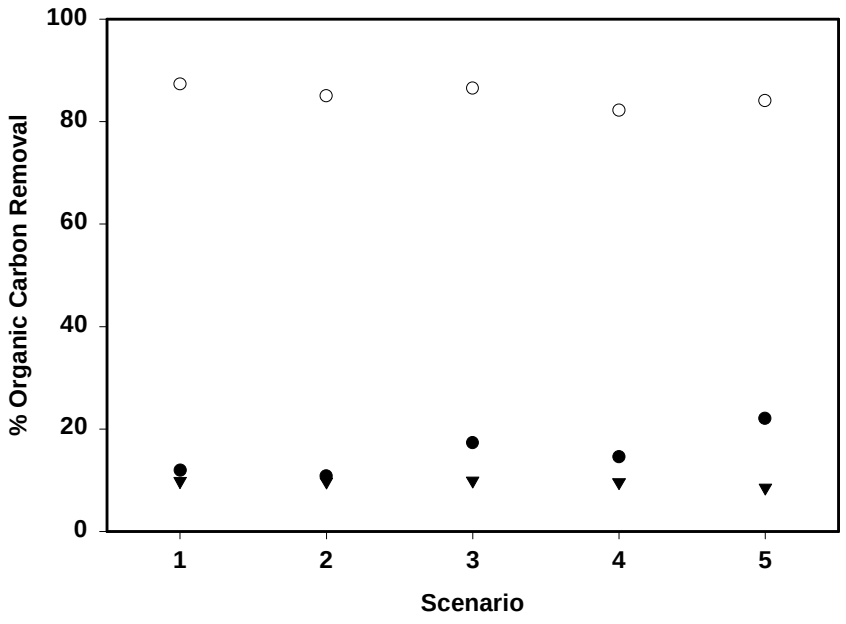


Figure 29. Organic carbon removal for St. Johns Bayou.

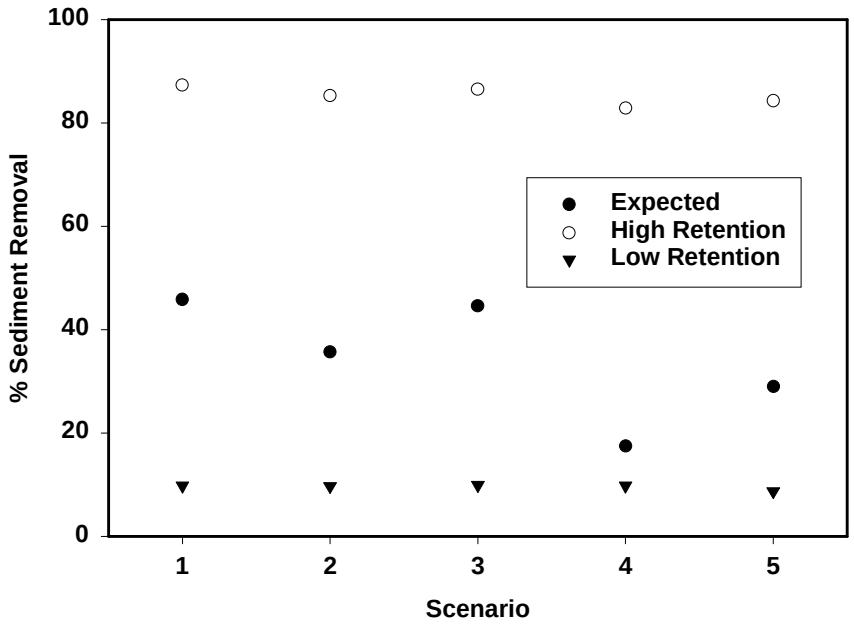


Figure 30. Sediment removal for St. Johns Bayou.

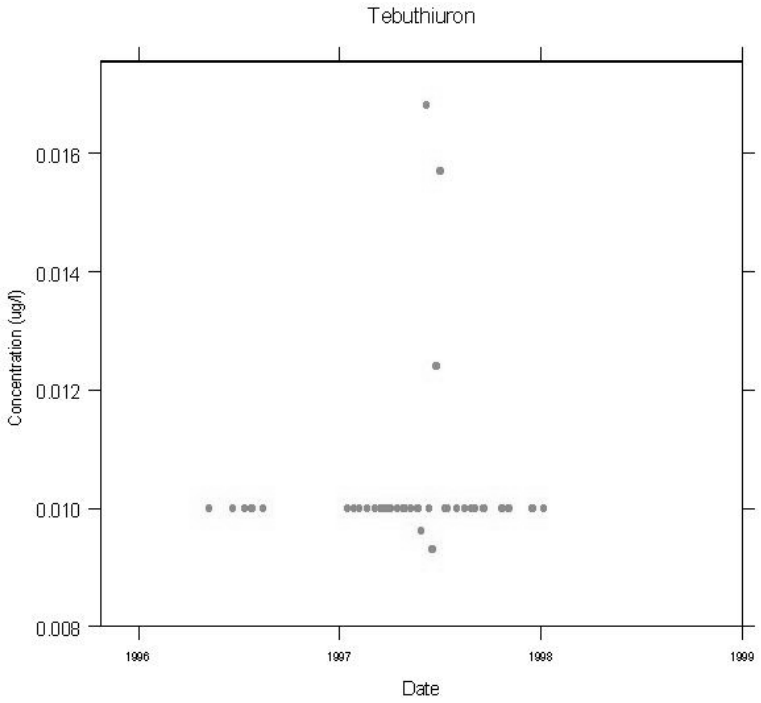


Figure 31. Distribution of Tebuthiuron.

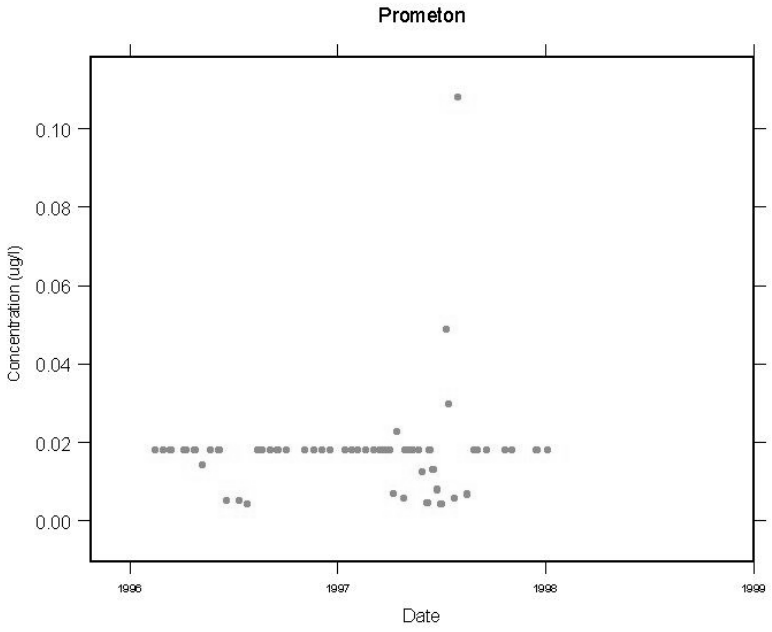


Figure 32. Distribution of Prometon.

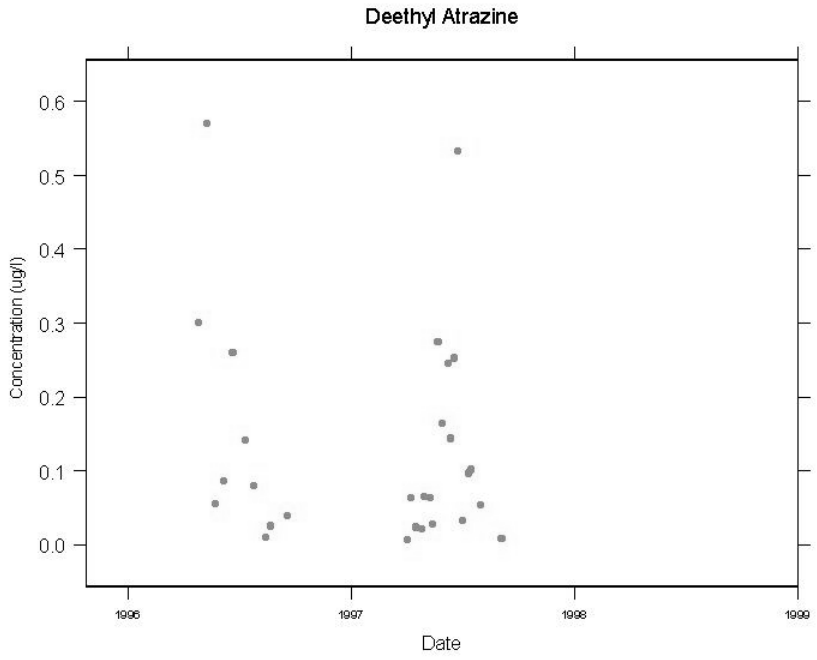


Figure 33. Distribution of Diethyl Atrazine.

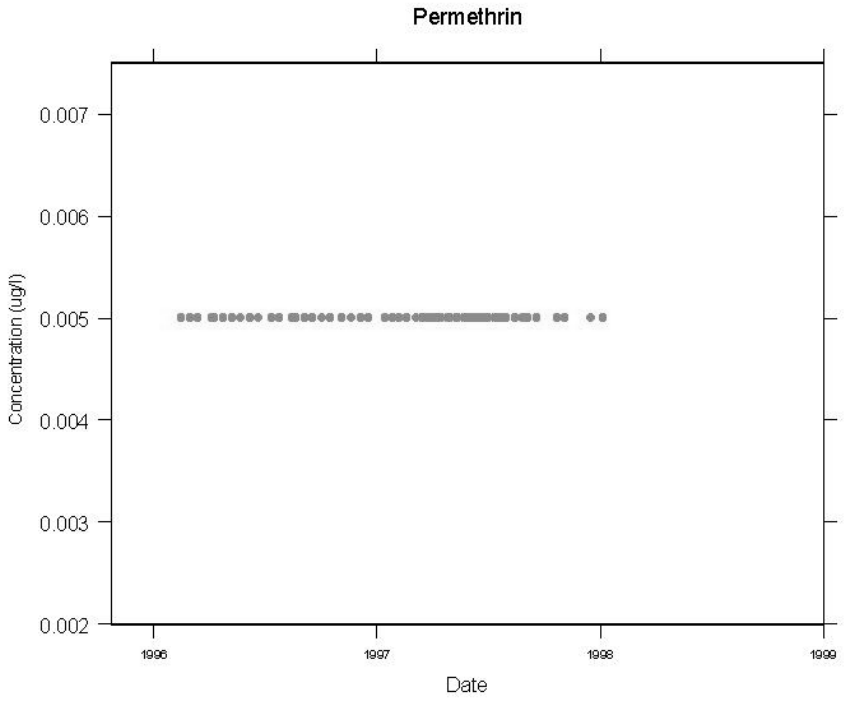


Figure 34. Distribution of Permethrin.

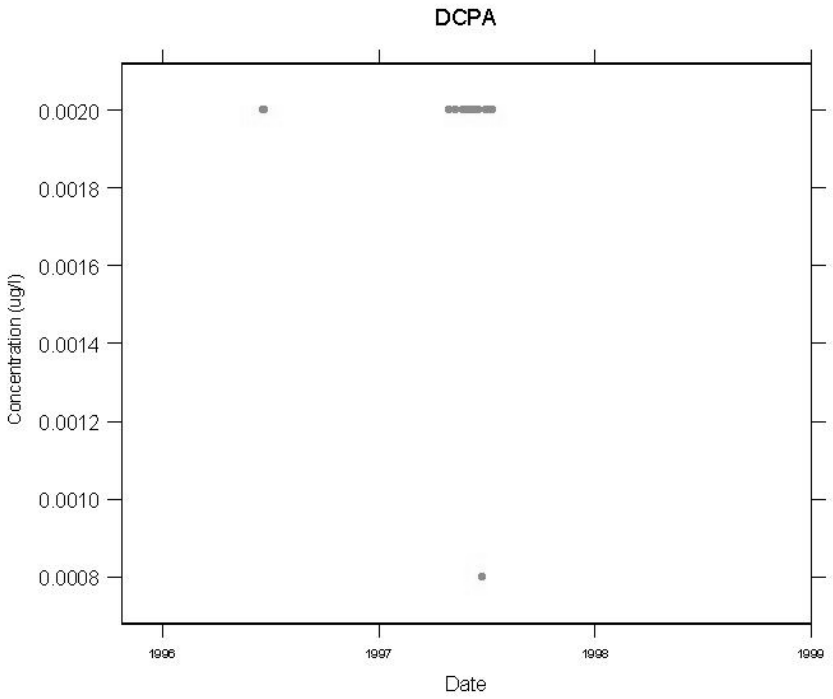


Figure 35. Distribution of DCPA.

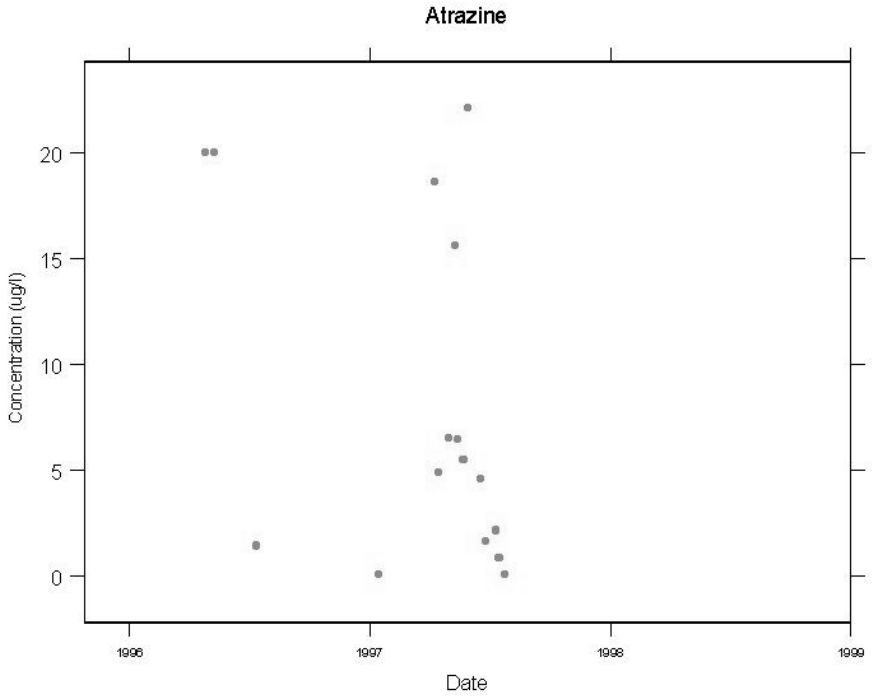


Figure 36. Distribution of Atrazine.

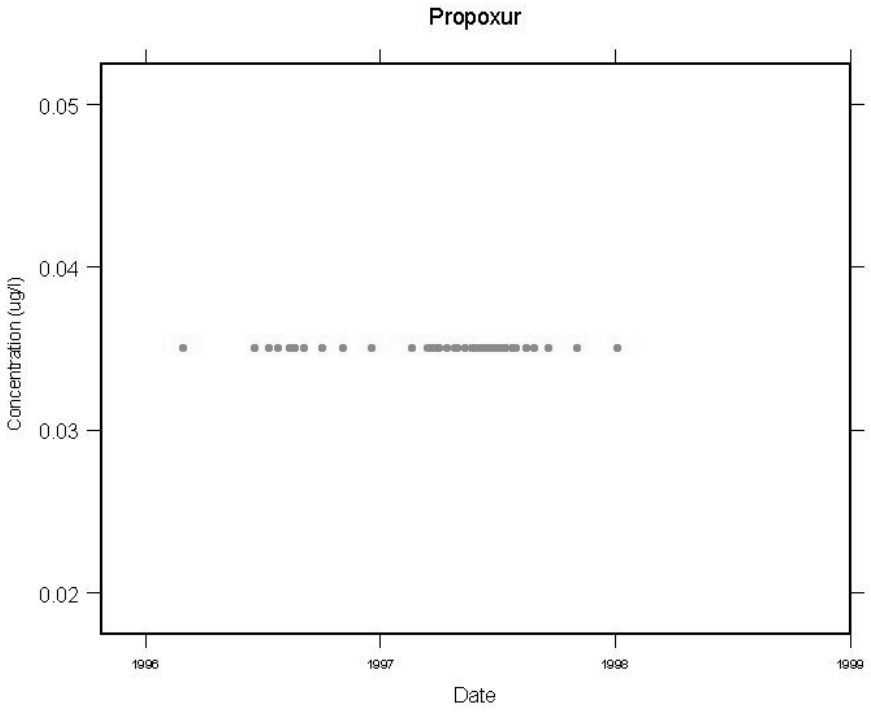


Figure 37. Distribution of Propoxur.

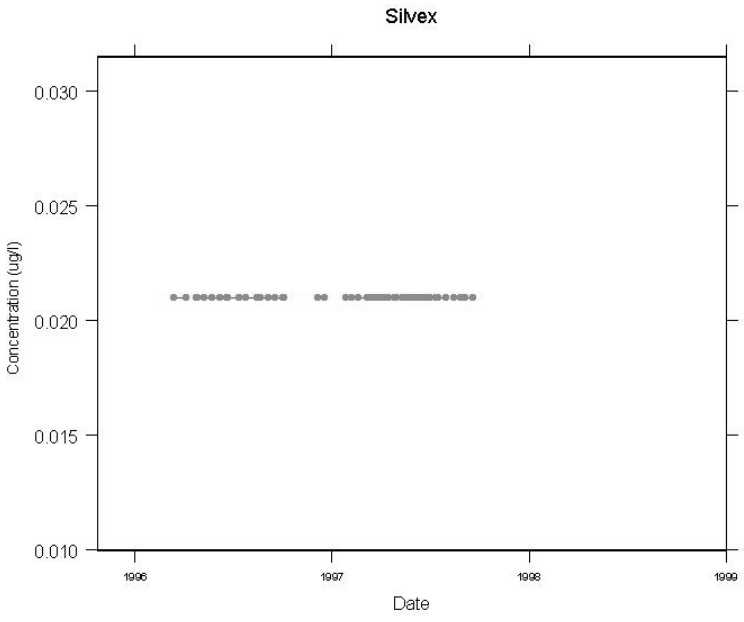


Figure 38. Distribution of Silvex.

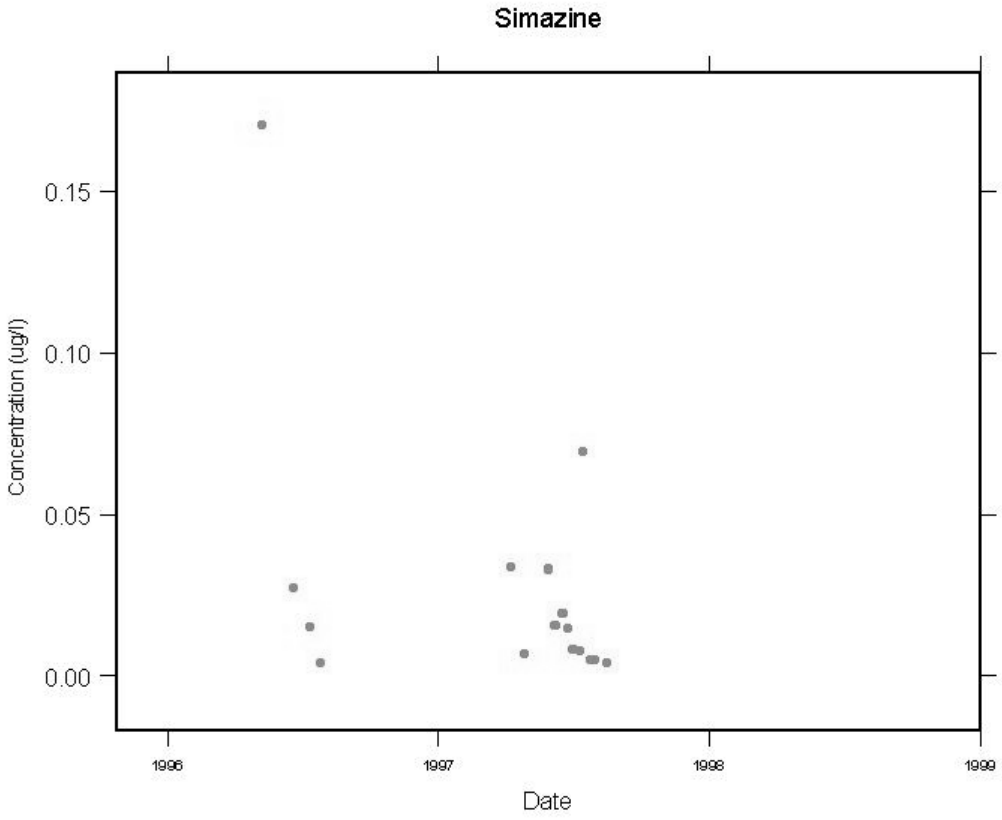


Figure 39. Distribution of Simazine.

APPENDIX A

Water Quality Data Sources
Annotated Bibliography

Brahana, J.V., Mesko, T.O., Busby, J.F., and Kraemer, T.F. 1985. Ground-water quality data from the northern Mississippi embayment – Arkansas, Missouri, Kentucky, Tennessee, and Mississippi. USGS Open-file report 85-683.

Data were included in the STORET retrieval.

Brahana, J.V. and Mesko, T.O. 1987. Hydrogeology and preliminary assessment of regional flow in the upper Creataceous and adjacent aquifers in the northern Mississippi embayment. USGS Water-resources investigations report 87-4000.

Data were not applicable to the study except for supporting information on potential pesticide movement in the groundwater.

Heimann, D.C. and Femmer, S.R. 1998. Water quality, hydrology, and invertebrate communities of three remnant wetlands in Missouri, 1995-1997. USGS Water-resources investigations report 98-4190.

Data were not applicable to the study area.

Holmes, Jr., R. R. 1993. Sediment transport in the lower Missouri and the central Mississippi Rivers – June 26 through September 14, 1993, Floods in the Upper Mississippi River Basin, 1993. USGS Circular 1120-1.

Data were used in developing sediment concentrations and potential distribution and sedimentation patterns used for the Mississippi River.

Killpack, S.C. and Buchholz, D. 1993. Nitrogen in the environment: Nitrogen replacement value of legumes, University Extension, University of Missouri-Columbia, Water Quality Initiative publication WQ277.

Used in the discussion of nitrogen movement in agricultural and upland land covers.

Lory, J.A. 1999. Agricultural phosphorus and water quality, University of Missouri, Agricultural Publication, G9181.

Used in determining the potential for phosphorus movement.

Luckey, R.R. and Fuller, D.L. 1979. Hydrogeologic data for the Mississippi embayment of southeastern Missouri. USGS Open-file report 79-421.

Data were included in the STORET retrieval.

Luckey, R.R. and Fuller, D.L. 1984. Water resources of the southeast lowlands, Missouri. USGS Water-resources investigations report 84-4277.

Included data that were not included in the STORET retrieval.

MDNR. 1978. Memorandum – Results of water quality and compliance monitoring survey at Sikeston Municipal Wastewater Treatment Facility.

Included in discussion of point source data.

MDNR. 1978. Compliance Monitoring Report, Charleston Municipal Wastewater Treatment Facility, MO-0021776, May 16-May19, 1978.

Included in discussion of point source data.

MDNR. 1984. St. John's Ditch, Scott and New Madrid Counties, August 8 and 9, 1984.

Included in discussion of point source data.

MDNR. 1996. Stream survey of St. John's Ditch by John Ford, near the Sikeston Wastewater Treatment Plant.

Included in discussion of point source data.

Mesko, T.O. and Berkas, W.R. 1987. Missouri ground-water quality, USGS Open-file report 87-0735.

Was not applicable to the study.

Mesko, T.O. and Carlson, G.M. 1988. Occurrence of pesticides, nitrate, volatile organic compounds, and trace elements in ground water and streams, southeastern Missouri, 1986-1987. USGS Open-file report 88-495.

Data were included in the STORET retrieval.

Natural Resources Conservation Service, 1997-1999, Southeast Missouri Regional Water District, well-water reports.

Data were included in the discussion of groundwater quality.

Schardein, K. 1976. Water quality monitoring report, Sikeston, Missouri, MO-0035009, October 19-22, 1976. Missouri Department of Natural Resources.

Included in discussion of point source data.

Tracy, P.W. and Hefner, S.G. 1991. A survey of southeast Missouri irrigation. University Extension, University of Missouri-Columbia, WQ278.

Used as supporting information for assessing the potential for pesticide movement.

University of Missouri. 1996. Missouri soil fertility and fertilizers research update, 1995. Agronomy Miscellaneous Publication 96-03.

Used in assessing potential phosphorus movement.

University of Missouri. 1999. Missouri soil fertility and fertilizers research update, unpublished data.

Used in assessing potential phosphorus movement.

US EPA – STORET

Used to determine concentration distributions and mean values.

USGS – NAWQA studies in the boothill of MO. 1996-1999.

Used to supplement suggested concentration values and distributions described with data from the study area included in the STORET retrieval.

Pesticide Sources

MSEA Water Quality Projects, 1999. ATRAZINE, Extension Publications, University of Missouri, Columbia, MO.

Smith, M.B., Blanchard, P. E, Johnson, G. S., 1999. Atrazine Management and Water Quality, Manual 167, Extension Publications, University of Missouri-Columbia, Columbia, MO.

Smith, M.B., Prato, T. A., Blanchard,P.E., Kitchen, N.R., Lerch, R, N., Hjelmfelt, A. T., and Alberts, E. E., 1999. An Integrated Systems Approach to Watershed Management and Water Quality, Special Report 525, Extension Publications, , University of Missouri-Columbia, Columbia, MO.

Agricultural Drainage, Bulletin 871-98, Bulletin Extension, The Ohio State University, http://ohioline.ag.ohio-state.edu/b871/b871_32.html.

Skopec, M. P. and Hoyer, B. E., 1998. Pesticide Trends in Surface and Groundwater in Iowa: 1980 – 1995. Poster at the Sixth National Nonpoint-Source Monitoring Workshop, Cedar Rapids, Iowa, http://samuel.igsb.uiowa.edu/inforsch/iapest/pesticid.html

Johnson, B and Kending, A., 1999. Weed Control Guide for Missouri Field Crops, MP575, Outreach and Extension, University of Missouri-Columbia, Columbia, MO.

Hoffman D. J. and Keaster, A. J., 1999. Corn Soil Insects Research, Special Report 519, Agricultural Experiment Station, University of Missouri-Columbia, Columbia, MO.

Burkart, M.R., Gassman, P.W., Morman, T.B., and Singh, P., 1999. Estimating Atrazine Leaching in the Midwest, Journal of the American Water Resources Association, Vol. 35, No.5.

Squillace, P.J., Burkart, M.A., and Simpkins, W.W., 1997. Infiltration of Atrazine and Metabolites From A Stream to An Alluvial Aquifer, Journal of the American Water Resources Association, Vol. 33, No.1.

Holden, L.R., Graham, J.A., Whitmore, R.W., Alexander, W.J., Pratt, R.W., Liddle, S.K., and Piper, L.L., 1992. Results of the National Alachlor Well Water Survey, Environmental Science and Technology, Vol 26, No. 5.

Ostrofsky, E.B., Traina, S.J., Tuovinen, O.H., 1997. Variation in Atrazine Mineralization Rates in Relation to Agricultural Management Practice, Journal of Environmental Quality, 26:647-657.

Stolpe, N.B. and Shea, P.J., 1995. Alachlor and Atrazine Degradation in Nebraska Soil and Underlying Sediments, Soil Science, Vol.160, No.5.

Thurman, E.M., Goolsby, D.A., Meyer, M.T., Mills, M.S., Pomes, M.L., and Kolpin, D.W., 1992. A reconnaissance Study of Herbicides and Their Metabolites in Surface Water of the Midwestern United States Using Immunoassay and Gas Chromatography/Mass Spectrometry, Environmental Science and Technology, 26-2440-2447.

APPENDIX B
Water Quality Data and Data Summaries

Table B1. Database developed from the STORET retrieval.												
Station	Station Description	Media	Sdate	Time	Depth	10		11		34		
8798	BIG OAK LAKE SSE OF EAST PRAIRIE, MISSOURI.	/TYPA/AMBNT/FISH/LAKE	910909	1540	-	-	@	-	@	-	@
2752	MISS R AT NEW MADRID MO	/TYPA/AMBNT/FISH/STREAM	770928	1115	-	-	@	-	@	-	@
8730	MISSISSIPPI AT CARUTHERSVILLE, MISSOURI.	/TYPA/AMBNT/FISH/STREAM	940913	1500	-	-	@	-	@	-	@
8730	MISSISSIPPI AT CARUTHERSVILLE, MISSOURI.	/TYPA/AMBNT/FISH/STREAM	960910	1130	-	-	@	-	@	-	@
2356	NEW MADRID POWER PLANT	/TYPA/AMBNT/STREAM	760915	1000	-	37	@	-	@	-	@
2356	NEW MADRID POWER PLANT	/TYPA/AMBNT/STREAM	760916	930	-	36	@	-	@	-	@
2356	NEW MADRID POWER PLANT	/TYPA/AMBNT/STREAM	760917	930	-	37	@	-	@	-	@
2356	NEW MADRID POWER PLANT	/TYPA/AMBNT/STREAM	760916	1030	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760914	850	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760915	850	-	24	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760916	800	-	24.5	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760915	730	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760917	815	-	27.5	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	760916	800	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	780725	1002	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	780726	850	-	31.5	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	780727	840	-	32	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	780727	840	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	810916	1045	-	24	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	810917	840	-	21	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	920302	1030	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	930303	1025	-	18.6	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	930304	1030	-	16.9	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	930303	1015	-	-	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	930305	945	-	16.5	@	-	@	-	@
2469	PLASTENE SUPPLY-COOLING WATER	/TYPA/AMBNT/STREAM	930304	1030	-	-	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	921216	1430	0.983999	4.5	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	907	0.983999	-	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	907	-	2.6	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	908	4.92	2.6	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	910	9.84	2.6	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	912	16.4	2.6	@	-	@	-	@
210066	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	914	22.96	2.6	@	-	@	-	@
210067	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	921216	-	-	-	@	-	@	-	@
210067	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	1030	1.64	3.9	@	-	@	-	@
210068	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	921216	-	-	-	@	-	@	-	@
210068	HICKMAN COPRODUCTION	/TYPA/AMBNT/STREAM	930203	1045	1.64	3.1	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	921217	1230	1.312	5.2	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	930203	1358	0.983999	4.9	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	930203	1400	4.92	4.9	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	930203	1402	9.84	4.9	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	930203	1403	16.4	4.9	@	-	@	-	@
477504	JOLLY LANDING	/TYPA/AMBNT/STREAM	930203	1404	21.32	4.9	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	921217	1115	1.312	6.4	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	921217	1116	3.28	6.4	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	921217	1118	6.56	6.4	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	921217	1120	9.84	6.5	@	-	@	-	@

Station	Station Description	Media	Sdate	Time	Depth	10		11		34	
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	921217	1121	11.808	6.5	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	930203	1306	0.983999	5.6	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	930203	1309	4.92	5	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	930203	1310	9.84	4.9	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	930203	1311	16.4	5	@	-	@	-	@
477505	SLAB FILL CHUTE	/TYPA/AMBNT/STREAM	930203	1313	18.696	5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1200	1.312	5.6	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1201	3.28	5.6	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1202	6.56	5.6	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1203	9.84	5.6	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1204	13.12	5.5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1205	16.4	5.5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1206	19.68	5.5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	921217	1208	22.96	5.5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	930203	1327	0.983999	5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	930203	1328	4.92	5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	930203	1329	9.84	5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	930203	1330	16.4	5	@	-	@	-	@
477506	UPPER HEAD CHUTE	/TYPA/AMBNT/STREAM	930203	1332	20.336	5	@	-	@	-	@
477507	TIPTONVILLE COPRODUCTION	/TYPA/AMBNT/STREAM	921217	-	-	-	@	-	@	-	@
477507	TIPTONVILLE COPRODUCTION	/TYPA/AMBNT/STREAM	930203	-	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	690723	1445	-	30	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	690724	915	-	28	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	690903	920	-	27	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	690903	930	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	691015	920	-	17	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	691120	1000	-	9	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	691120	-	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	691216	1000	-	6	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	691216	-	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700129	940	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700226	930	-	4.5	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700326	940	-	8	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700326	945	-	8	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700416	950	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700416	-	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700521	1000	-	23	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700521	-	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700625	955	-	26	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700625	1000	-	-	@	-	@	-	@
7024070	MISSISSIPPI RIVER AT HICKMAN, KY.	/TYPA/AMBNT/STREAM	700710	1000	-	29	@	-	@	-	@
5600	LOXCREEN IND WATER SUPPLY,HAYTI	/TYPA/AMBNT/WELL	790821	835	-	-	@	-	@	-	@
5602	LOXCREEN MUNI WATER SUPPLY,HAY\I	/TYPA/AMBNT/WELL	790821	830	-	-	@	-	@	-	@
360019089484301	T16N R11E 01DCB1	/TYPA/AMBNT/WELL	690325	-	-	-	@	-	@	-	@
360019089484301	T16N R11E 01DCB1	/TYPA/AMBNT/WELL	750107	1200	-	16	@	-	@	-	@
360032089553201	T16N R10E 24BCC1	/TYPA/AMBNT/WELL	860617	-	-	-	@	-	@	-	@
360320089522001	T16N R11E 04BAC1	/TYPA/AMBNT/WELL	641106	-	-	-	@	-	@	-	@
360526089440601	T17N R12E 23CCB1	/TYPA/AMBNT/WELL	860617	-	-	-	@	-	@	-	@

Station	Station Description	Media	Sdate	Time	Depth	10		11		34	
360949089435001	T18N R12E 25BBB1	/TYPA/AMBNT/WELL	661117	-	-	-	@	-	@	-	@
360949089435001	T18N R12E 25BBB1	/TYPA/AMBNT/WELL	750107	1200	-	16	@	-	@	-	@
360949089435001	T18N R12E 25BBB1	/TYPA/AMBNT/WELL	750702	1200	-	-	@	-	@	-	@
361030089425001	PEMISCOT PWSD 1 WELL 2	/TYPA/AMBNT/WELL	810928	1200	-	-	@	-	@	-	@
361030089425001	PEMISCOT PWSD 1 WELL 2	/TYPA/AMBNT/WELL	821001	1200	-	-	@	-	@	-	@
361130089394001	T18N R13E 16BCC1	/TYPA/AMBNT/WELL	430304	-	-	-	@	-	@	-	@
361140089392903	T18N R13E 16CAD3	/TYPA/AMBNT/WELL	550210	1200	-	-	@	-	@	-	@
361140089393001	T18N R13E 16CAC1	/TYPA/AMBNT/WELL	600428	-	-	-	@	-	@	-	@
361140089393101	T18N R13E 16CAD	/TYPA/AMBNT/WELL	670222	-	-	-	@	-	@	-	@
361242089390401	LK:A- 1 SPRIGGS	/TYPA/AMBNT/WELL	560329	-	-	15.6	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	470218	1200	-	-	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	510514	1200	-	-	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	510622	1200	-	-	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	540423	1200	-	-	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	570927	1200	-	35	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	831012	1000	-	34	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	831014	1030	-	34	@	-	@	-	@
361415089450201	HAYTI NO.3-ARTESIAN WELL	/TYPA/AMBNT/WELL	840802	800	-	34.5	@	-	@	-	@
361418089444501	T19N R12E 34CAC1	/TYPA/AMBNT/WELL	620605	-	-	-	@	-	@	-	@
361425089450701	T19N R12E 34CB	/TYPA/AMBNT/WELL	710910	-	-	-	@	-	@	-	@
361455089443301	T19N R12E 27DCB1	/TYPA/AMBNT/WELL	860618	1200	-	-	@	-	@	-	@
361455089443301	T19N R12E 27DCB1	/TYPA/AMBNT/WELL	860618	1205	-	-	@	-	@	-	@
361455089443301	T19N R12E 27DCB1	/TYPA/AMBNT/WELL	860618	-	-	-	@	-	@	-	@
361920089432801	T20N R12E 35DCD1	/TYPA/AMBNT/WELL	860618	-	-	-	@	-	@	-	@
361937089343201	LK:D- 1 JOE CHADWICK	/TYPA/AMBNT/WELL	560329	-	-	16.1	@	-	@	-	@
362100089422001	T20N R12E 24DDC1	/TYPA/AMBNT/WELL	550608	-	-	-	@	-	@	-	@
362252089420201	T20N R13E 07CBC1	/TYPA/AMBNT/WELL	860618	-	-	-	@	-	@	-	@
362338089364401	T20N R13E 11AAB1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362341089365701	T20N R13E 11ABB1	/TYPA/AMBNT/WELL	750729	1200	-	17	@	-	@	-	@
362355089364801	T20N R13E 02DCA1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362356089364001	T20N R13E 02DDB1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362406089365401	T20N R13E 02DBB1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362408089364301	T20N R13E 02DBA1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362419089365201	T20N R13E 02ACA1	/TYPA/AMBNT/WELL	750729	1200	-	16	@	-	@	-	@
362440089334801	T21N R14E 32DCC1	/TYPA/AMBNT/WELL	781109	1200	-	31	@	-	@	-	@
362527089421101	T21N R12E 36AAA1 PORTAGEVILLE WELL NO.3	/TYPA/AMBNT/WELL	590930	1200	-	-	@	-	@	-	@
362527089421101	T21N R12E 36AAA1 PORTAGEVILLE WELL NO.3	/TYPA/AMBNT/WELL	590930	-	-	-	@	-	@	-	@
362527089421101	T21N R12E 36AAA1 PORTAGEVILLE WELL NO.3	/TYPA/AMBNT/WELL	750814	1200	-	16	@	-	@	-	@
362528089414301	T21N R13E 30CDC1	/TYPA/AMBNT/WELL	620821	1200	-	18	@	-	@	-	@
362528089414301	T21N R13E 30CDC1	/TYPA/AMBNT/WELL	621212	1200	-	-	@	-	@	-	@
362530089414001	T21N R13E 30CDC1	/TYPA/AMBNT/WELL	410701	-	-	-	@	-	@	-	@
362640089295301	LK:G- 7 W.F. TIPTON	/TYPA/AMBNT/WELL	560329	-	-	16.7	@	-	@	-	@
362718089361101	T21N R13E 13CDC1	/TYPA/AMBNT/WELL	860618	-	-	-	@	-	@	-	@
362955089293301	J. WHITSON	/TYPA/AMBNT/WELL	660113	-	-	-	@	-	@	-	@
363039089240901	K02C0004	/TYPA/AMBNT/WELL	660113	-	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	620822	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	621005	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	630710	1200	-	-	@	-	@	-	@

Station	Station Description	Media	Sdate	Time	Depth	10		11		34	
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	630813	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	640723	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	660225	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	670714	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	690813	1200	-	-	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	750814	1200	-	16	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	831102	745	-	28.2	@	-	@	-	@
363107089363401	CITY OF MARSTON	/TYPA/AMBNT/WELL	840802	1100	-	24.7	@	-	@	-	@
363126089291501	-	/TYPA/AMBNT/WELL	650420	-	-	-	@	-	@	-	@
363130089370001	T22N R13E	/TYPA/AMBNT/WELL	710723	-	-	-	@	-	@	-	@
363157089291701	J. WHITSON	/TYPA/AMBNT/WELL	650420	-	-	-	@	-	@	-	@
363200089350001	T22N R14E 19	/TYPA/AMBNT/WELL	690516	-	-	-	@	-	@	-	@
363219089310701	A. STEPP	/TYPA/AMBNT/WELL	650419	-	-	-	@	-	@	-	@
363447089173401	K02D0508	/TYPA/AMBNT/WELL	650420	-	-	15.6	@	-	@	-	@
363500089320001	T23N R14E 34DCD1	/TYPA/AMBNT/WELL	660720	-	-	-	@	-	@	-	@
363517089124501	-	/TYPA/AMBNT/WELL	661115	-	-	13.9	@	-	@	-	@
363523089361001	T23N R13E 35CAA1	/TYPA/AMBNT/WELL	520709	1200	-	-	@	-	@	-	@
363523089361001	T23N R13E 35CAA1	/TYPA/AMBNT/WELL	620822	1200	-	19	@	-	@	-	@
363659089142801	-	/TYPA/AMBNT/WELL	661115	-	-	-	@	-	@	-	@
363827089172701	T23N R16E 14ACB1	/TYPA/AMBNT/WELL	640930	1200	-	14	@	-	@	-	@
363827089172701	T23N R16E 14ACB1	/TYPA/AMBNT/WELL	650823	1200	-	-	@	-	@	-	@
363827089172701	T23N R16E 14ACB1	/TYPA/AMBNT/WELL	750806	1200	-	7.4	@	-	@	-	@
363830089173501	T23N R16E 14BDA	/TYPA/AMBNT/WELL	640930	-	-	-	@	-	@	-	@
363840089170001	T23N R16E 14AAA1	/TYPA/AMBNT/WELL	661117	-	-	-	@	-	@	-	@
364055089103201	T24N R17E 35ADD1	/TYPA/AMBNT/WELL	860617	-	-	-	@	-	@	-	@
364222089243401	T24N R15E 23CBC1	/TYPA/AMBNT/WELL	760727	1200	-	17	@	-	@	-	@
364224089273301	T24N R15E 20CAC1	/TYPA/AMBNT/WELL	760727	1200	-	15	@	-	@	-	@
364240089313201	T24N R14E 22ACA1	/TYPA/AMBNT/WELL	760727	1200	-	15	@	-	@	-	@
364247089273401	T24N R15E 20BDB1	/TYPA/AMBNT/WELL	760727	1200	-	15	@	-	@	-	@
364331089123701	T24N R17E 15BCC1	/TYPA/AMBNT/WELL	860617	-	-	-	@	-	@	-	@
364424089151701	T24N R17E 07ACC1	/TYPA/AMBNT/WELL	760527	1200	4900	-	@	-	@	-	@
364453089282401	T24N R15E 06CDD1	/TYPA/AMBNT/WELL	860618	1200	-	-	@	-	@	-	@
364453089282401	T24N R15E 06CDD1	/TYPA/AMBNT/WELL	860618	1205	-	-	@	-	@	-	@
364453089282401	T24N R15E 06CDD1	/TYPA/AMBNT/WELL	860618	-	-	-	@	-	@	-	@
W47371	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	921217	1515	-	13.8	@	-	@	-	@
W47371	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	930204	835	-	12.7	@	-	@	-	@
W47372	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	921217	1554	-	8.2	@	-	@	-	@
W47372	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	930204	855	-	9.1	@	-	@	-	@
W47373	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	921217	1635	-	15.6	@	-	@	-	@
W47373	COPRODUCTION SITE ASSESSMENT	/TYPA/AMBNT/WELL	930204	950	-	15.7	@	-	@	-	@
2363	NEW MADRID POWER PLANT	/TYPA/IND/NTRTMT/INTAKE/NONAMB/PIPE	760915	910	-	23.5	@	-	@	-	@
2363	NEW MADRID POWER PLANT	/TYPA/IND/NTRTMT/INTAKE/NONAMB/PIPE	760916	855	-	22.5	@	-	@	-	@
2363	NEW MADRID POWER PLANT	/TYPA/IND/NTRTMT/INTAKE/NONAMB/PIPE	760915	1100	-	-	@	-	@	-	@
2363	NEW MADRID POWER PLANT	/TYPA/IND/NTRTMT/INTAKE/NONAMB/PIPE	760917	915	-	23	@	-	@	-	@
5601	LOXCREEN IND SLUDGES,HAYTI MO.	/TYPA/IND/NTRTMT/OUTFL/NONAMB/PIPE	790821	800	-	-	@	-	@	-	@
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741023	745	-	17	@	-	@	-	@
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741022	755	-	-	@	-	@	-	@
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741024	650	-	19	@	-	@	-	@

Station	Station Description	Media	Sdate	Time	Depth	10		11		34	
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741023	715	-	-	@	-	@	-	@
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741025	650	-	19	@	-	@	-	@
989	PLASTENE SETTLING POND EFFLUENT	/TYPA/IND/PTRTMT/OUTFL/NONAMB/PIPE	741024	650	-	-	@	-	@	-	@
990	PLASTENE COMBINED EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	741023	635	-	17	@	-	@	-	@
990	PLASTENE COMBINED EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	741022	730	-	-	@	-	@	-	@
990	PLASTENE COMBINED EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	741024	630	-	20	@	-	@	-	@
990	PLASTENE COMBINED EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	741025	630	-	19	@	-	@	-	@
990	PLASTENE COMBINED EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	741024	630	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	1600	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	1605	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1055	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1600	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1605	-	-	@	-	@	-	@
2353	LOXCREEN PAINT LINE EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	930	-	-	@	-	@	-	@
2357	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1045	-	22.5	@	-	@	-	@
2357	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	910	-	24.5	@	-	@	-	@
2358	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	1040	-	23.5	@	-	@	-	@
2358	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1010	-	22.5	@	-	@	-	@
2359	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	915	-	32	@	-	@	-	@
2359	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	910	-	30	@	-	@	-	@
2359	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	905	-	31	@	-	@	-	@
2360	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	940	-	23.5	@	-	@	-	@
2360	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	900	-	23.5	@	-	@	-	@
2361	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	1020	-	-	@	-	@	-	@
2361	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	1005	-	-	@	-	@	-	@
2361	NEW MADRID POWER PLANT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	930	-	23.5	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760914	1000	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	845	-	24	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	840	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	855	-	24	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	850	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	840	-	23	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790821	750	-	27	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790820	1007	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790822	825	-	25	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790821	750	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790823	825	-	26	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	790822	825	-	-	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810916	1000	-	22	@	-	@	-	@
2365	LOXCREEN ANODIZING EFFLUENT	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810917	1030	-	18	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	745	-	23	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760914	835	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	805	-	22	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760915	745	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760917	800	-	21.5	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	760916	805	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780725	929	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780726	835	-	29	@	-	@	-	@

Station	Station Description	Media	Sdate	Time	Depth	10		11		34	
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780726	830	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780727	820	-	28.5	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780728	820	-	28	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	780727	815	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810915	855	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810916	1055	-	24	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810916	1050	-	-	@	-	@	-	@
2468	PLASTENE SUPPLY-HOLDING POND	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	810917	845	-	23	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
MO0001171	ASSOC ELECT COOP NEW MADRID /	/TYPA/IND/TREATD/OUTFL/NONAMB/PIPE	830601	-	-	-	@	-	@	-	@
988	PORTAGEVILLE WTP LIME POND EFF	/TYPA/MUN/PTRTMT/OUTFL/NONAMB/PIPE	741023	745	-	15	@	-	@	-	@
988	PORTAGEVILLE WTP LIME POND EFF	/TYPA/MUN/PTRTMT/OUTFL/NONAMB/PIPE	741024	725	-	15	@	-	@	-	@
988	PORTAGEVILLE WTP LIME POND EFF	/TYPA/MUN/PTRTMT/OUTFL/NONAMB/PIPE	741025	715	-	15.5	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760914	900	-	-	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760915	810	-	23	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760915	805	-	-	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760916	815	-	24	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760916	810	-	-	@	-	@	-	@
2354	CARUTHERSVILLE LAGOON EFFLUENT	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	760917	815	-	-	@	-	@	-	@
8538	CARUTHERSVILLE WWTP OUTFALL 001	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	900606	1000	-	25	@	-	@	-	@
8538	CARUTHERSVILLE WWTP OUTFALL 001	/TYPA/MUN/TREATD/OUTFL/NONAMB/PIPE	900605	1001	-	-	@	-	@	-	@

Table B1. Databas																																		
Station	50		56		59		60		61		65		70		74		77		90		94		95		300		301		310		400		403	
8798	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2752	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
8730	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
8730	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2356	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	440	@	-	@	-	@	-	@	-	@	8.2	@
2356	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	480	@	-	@	-	@	-	@	-	@	7.3	@
2356	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2356	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	480	@	-	@	-	@	-	@	-	@	8.5	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	450	@	-	@	-	@	4	@	-	@	8.1	@
2469	-	@	-	@	36	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	43	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	420	@	-	@	-	@	1	K	-	@	8.1	@
2469	-	@	-	@	29	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	420	@	-	@	-	@	8	K	-	@	7.9	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	8.5	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.7	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	6.4	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.2	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.31	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.03	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.37	@	-	@
2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	457	@	498	@	-	@	12	@	-	@	-	@	8.14	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	454	@	470	@	-	@	13.5	@	-	@	-	@	7.98	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	457	@	469	@	-	@	13	@	-	@	-	@	8	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	459	@	468	@	-	@	12.9	@	-	@	-	@	8	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	460	@	469	@	-	@	12.8	@	-	@	-	@	8.01	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	461	@	468	@	-	@	12.7	@	-	@	-	@	8.01	@	-	@
210067	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210067	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	439	@	606	@	-	@	13.2	@	-	@	-	@	8.02	@	-	@
210068	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210068	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	439	@	519	@	-	@	12.5	@	-	@	-	@	8.02	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	678	@	4	@	-	@	11.5	@	-	@	-	@	6.8	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	456	@	320	@	-	@	13.2	@	-	@	-	@	7.88	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	458	@	319	@	-	@	13	@	-	@	-	@	7.84	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	459	@	320	@	-	@	12.8	@	-	@	-	@	7.83	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	460	@	318	@	-	@	12.7	@	-	@	-	@	7.81	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	462	@	321	@	-	@	12.6	@	-	@	-	@	7.8	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	640	@	440	@	-	@	9.8	@	-	@	-	@	7.77	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	628	@	442	@	-	@	9.8	@	-	@	-	@	7.77	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	619	@	443	@	-	@	9.8	@	-	@	-	@	7.77	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	609	@	447	@	-	@	9.6	@	-	@	-	@	7.74	@	-	@

Station	50		56		59		60		61		65		70		74		77		90		94		95		300		301		310		400		403	
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	608	@	456	@	-	@	9	@	-	@	-	@	7.68	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	445	@	299	@	-	@	12.8	@	-	@	-	@	7.84	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	448	@	298	@	-	@	12.7	@	-	@	-	@	7.81	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	451	@	299	@	-	@	12.4	@	-	@	-	@	7.78	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	453	@	300	@	-	@	12.3	@	-	@	-	@	7.76	@	-	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	455	@	300	@	-	@	12.3	@	-	@	-	@	7.76	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	625	@	399	@	-	@	11.3	@	-	@	-	@	8.07	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	624	@	399	@	-	@	11.3	@	-	@	-	@	8.08	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	624	@	399	@	-	@	11.3	@	-	@	-	@	8.08	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	624	@	400	@	-	@	11.3	@	-	@	-	@	8.07	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	623	@	401	@	-	@	11.3	@	-	@	-	@	8.07	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	623	@	400	@	-	@	11.3	@	-	@	-	@	8.07	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	623	@	399	@	-	@	11.3	@	-	@	-	@	8.06	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	623	@	399	@	-	@	11.3	@	-	@	-	@	8.06	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	453	@	312	@	-	@	12.7	@	-	@	-	@	7.78	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	455	@	311	@	-	@	12.6	@	-	@	-	@	7.76	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	456	@	311	@	-	@	12.5	@	-	@	-	@	7.76	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	457	@	312	@	-	@	12.5	@	-	@	-	@	7.75	@	-	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	459	@	311	@	-	@	12.5	@	-	@	-	@	7.74	@	-	@
477507	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
477507	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	4	@	51	@	0.8	@	-	@	-	@
7024070	-	@	-	@	-	@	197000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	520	@	5.8	@	73	@	1.8	@	7.2	@	-	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	72	@	-	@	-	@	-	@
7024070	-	@	-	@	-	@	417000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	2.7	@	-	@	-	@
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7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	470	@	9.4	@	81	@	-	@	-	@	-	@
7024070	-	@	-	@	-	@	298000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	1.8	@	-	@	-	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	560	@	12.4	@	99	@	-	@	-	@	-	@
7024070	-	@	-	@	-	@	241000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	4	@	-	@	-	@
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7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0	@	-	@	-	@
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7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	380	@	6.5	@	79	@	-	@	-	@	-	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	1.4	@	7.8	@	-	@
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5600	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.7	@
5602	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	2	K	-	@	7.3	@
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360320089522001	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.2	@	-	@
360526089440601	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	6.5	@

Station	50		56		59		60		61		65		70		74		77		90		94		95		300		301		310		400		403	
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MO0001171	-	@	18720000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	6	@	-	@
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988	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	408	@	-	@	-	@	0	@	-	@	7.6	@
988	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	384	@	-	@	-	@	0	@	-	@	8	@
2354	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	400	@	-	@	-	@	20	@	-	@	9.4	@
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8538	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	460	@	-	@	-	@	-	@	-	@	-	@

Table B1. Databas																																		
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8798	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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8730	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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210066	-	@	-	@	57	@	-	@	0.76	@	-	@	0.1	@	-	@	-	@	-	@	-	@	-	@	-	@	3.16	@	-	@	-	@	0.25	@
210066	-	@	-	@	54	@	-	@	1.6	@	-	@	0.09	@	-	@	-	@	-	@	-	@	-	@	-	@	2.2	@	-	@	-	@	0.23	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210066	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210067	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210067	-	@	-	@	4	@	-	@	0.61	@	-	@	0.01	@	-	@	-	@	-	@	-	@	-	@	-	@	0.01	@	-	@	-	@	0.12	@
210068	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
210068	-	@	-	@	18	@	-	@	0.48	@	-	@	0.01	@	-	@	-	@	-	@	-	@	-	@	-	@	0.14	@	-	@	-	@	0.08	@
477504	-	@	-	@	54	@	-	@	0.26	@	-	@	0.65	@	-	@	-	@	-	@	-	@	-	@	-	@	0.55	@	-	@	-	@	0.24	@
477504	-	@	-	@	78	@	-	@	0.73	@	-	@	0.08	@	-	@	-	@	-	@	-	@	-	@	-	@	2.1	@	-	@	-	@	0.2	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
477504	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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477505	-	@	-	@	5	@	-	@	0.31	@	-	@	0.19	@	-	@	-	@	-	@	-	@	-	@	-	@	2.4	@	-	@	-	@	0.08	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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Station	410		500		530		600		605		608		610		612		615		618		619		620		625		630		631		635		665	
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
477505	-	@	-	@	16	@	-	@	0.53	@	-	@	0.06	@	-	@	-	@	-	@	-	@	-	@	-	@	1.4	@	-	@	-	@	0.12	@
477505	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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477506	-	@	-	@	56	@	-	@	0.32	@	-	@	0.12	@	-	@	-	@	-	@	-	@	-	@	-	@	2.17	@	-	@	-	@	0.12	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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477506	-	@	-	@	78	@	-	@	0.75	@	-	@	0.05	@	-	@	-	@	-	@	-	@	-	@	-	@	1.6	@	-	@	-	@	0.21	@
477506	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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7024070	130	@	546	@	284	@	-	@	-	@	0.01	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.03	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	131	@	378	@	68	@	-	@	-	@	0.08	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.16	@
7024070	146	@	740	@	434	@	-	@	-	@	0.06	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.09	@
7024070	112	@	370	@	72	@	-	@	-	@	0.12	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.21	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	103	@	364	@	26	@	-	@	-	@	0.28	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.21	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	116	@	436	@	178	@	-	@	-	@	0.48	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.09	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	59	@	218	@	72	@	-	@	-	@	0.02	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	77	@	470	@	242	@	-	@	-	@	-	@	0.03	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.07	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	102	@	734	@	512	@	-	@	-	@	0.01	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.49	@
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7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
7024070	112	@	258	@	32	@	-	@	-	@	0.03	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.04	@
7024070	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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360019089484301	374	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.07	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
360019089484301	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
360032089553201	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	K	-	@	-	@	-	@	-	@	-	@
360320089522001	266	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
360526089440601	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	K	-	@	-	@	-	@	-	@	-	@

Station	410		500		530		600		605		608		610		612		615		618		619		620		625		630		631		635		665	
360949089435001	388	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.07	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
360949089435001	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
360949089435001	340	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361030089425001	80	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361030089425001	59	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361130089394001	66	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.09	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361140089392903	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361140089393001	69	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.07	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361140089393101	70	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.18	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361242089390401	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	213	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	215	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	221	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	242	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	250	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361415089450201	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361418089444501	263	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361425089450701	235	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
361455089443301	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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362341089365701	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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362528089414301	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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362530089414001	255	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.25	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
362640089295301	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
362718089361101	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	K	-	@	-	@	-	@	-	@	-	@
362955089293301	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
363039089240901	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
363107089363401	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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363107089363401	115	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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363107089363401	122	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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2363	-	@	-	@	46	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2363	-	@	-	@	48	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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989	-	@	-	@	196	@	-	@	-	@	-	@	7.9	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.6	@
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989	-	@	-	@	183	@	-	@	-	@	-	@	4.2	@	-	@	-	@	-	@	-	@	-	@	4.7	@	-	@	-	@	-	@	5.6	@
990	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
990	-	@	-	@	133	@	-	@	-	@	-	@	7	@	-	@	-	@	-	@	-	@	-	@	8.2	@	-	@	-	@	-	@	6.3	@
990	-	@	-	@	53	@	-	@	-	@	-	@	8.6	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	7.3	@
990	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
990	-	@	-	@	177	@	-	@	-	@	-	@	6.4	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	5.9	@
2353	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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2353	-	@	-	@	-	@	-	@	-	@	-	@	0.4	K	-	@	-	@	-	@	-	@	-	@	0.5	@	0.9	@	-	@	-	@	56	@
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2357	-	@	-	@	34	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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2358	-	@	-	@	27	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2358	-	@	-	@	50	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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2359	-	@	-	@	48	@	-	@	-	@	-	@	0.4	K	-	@	-	@	-	@	-	@	-	@	0.4	K	0.3	@	-	@	-	@	0.5	@
2359	-	@	-	@	49	@	-	@	-	@	-	@	0.4	K	-	@	-	@	-	@	-	@	-	@	0.4	K	0.4	@	-	@	-	@	0.4	@
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2361	-	@	-	@	8	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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MO0001171	-	@	-	@	381302	@	-	@	3931	K	-	@	393.1	K	-	@	-	@	-	@	-	@	-	@	-	@	5896.4	@	-	@	-	@	1454.5	@
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MO0001171	-	@	-	@	8	@	-	@	-	@	-	@	0.3	@	-	@	-	@	-	@	-	@	-	@	-	@	1.22	@	-	@	-	@	-	@
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MO0001171	-	@	-	@	1250	@	-	@	-	@	-	@	46.9	@	-	@	-	@	-	@	-	@	-	@	-	@	190.6	@	-	@	-	@	-	@
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MO0001171	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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MO0001171	-	@	-	@	231139	@	-	@	156.2	K	-	@	240.8	K	-	@	-	@	-	@	-	@	-	@	-	@	3948.6	@	-	@	-	@	10.9	@
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MO0001171	-	@	-	@	31	@	-	@	0.4	K	-	@	0.4	K	-	@	-	@	-	@	-	@	-	@	-	@	0.2	@	-	@	-	@	0.02	@
988	-	@	-	@	600	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
988	-	@	-	@	808	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
988	-	@	-	@	540	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2354	-	@	-	@	48	@	-	@	-	@	-	@	0.1	@	-	@	-	@	-	@	-	@	-	@	1.7	@	-	@	-	@	-	@	2.8	@
2354	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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2354	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@
2354	-	@	-	@	52	@	-	@	-	@	-	@	0.4	K	-	@	-	@	-	@	-	@	-	@	1.4	@	0.1	K	-	@	-	@	2.6	@
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Table B1. Databas																															
Station	666		671		680		681		685		687		690		1045		1046		39530		39540		39570		39600		39601		39630		39730		39740
8798	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
2752	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
8730	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
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2469	-	@	-	@	-	@	-	@	-	@	-	@	-	@	450	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
210066	-	@	-	@	4	@	4.2	@	43	@	7	@	-	@	1500	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
210066	-	@	-	@	4.2	@	4.1	@	35	@	3	@	-	@	930	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
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210068	-	@	-	@	4.3	@	4.4	@	73	@	2	K	-	@	120	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
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364453089282401	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	K	-	@	0.05	K	0.05	K	-	@	0.5	K	0.01	K	0.01
364453089282401	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	0.05	K	-	@	0.05	K	0.05	K	-	@	0.5	K	0.01	K	0.01
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W47372	-	@	-	@	1.6	@	-	@	140	@	-	@	-	@	13000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
W47372	-	@	-	@	2.1	@	-	@	150	@	-	@	-	@	12000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
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988	-	@	-	@	-	@	-	@	-	@	-	@	-	@	298000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
988	-	@	-	@	-	@	-	@	-	@	-	@	-	@	58000	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-	@	-
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Table B1. Databas																													
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8798	@	-	@	-	@	-	@	-	@	-	@	-	@	0.001	U	-	@	-	@	-	@	-	@	-	@	-	@	-	@
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Table B2. Summary statistics for STORET retrieval data.								
PARAM	MEDIUM	NUMBER	MEAN	STANDEV	MAXIMUM	MINIMUM	BEGDATE	ENDDATE
10	WATER TEMP CENT	141	16.84	9.5	37	2.6	560329	930305
59	FLOW RATE INST-GPM	4	33.3	7.86	43	25.2	760915	790821
90	REDOX ORP MV	43	485.5	117.6	678	232	921216	930204
94	CNDUCTVY FIELD MICROMHO	43	432.3	174.1	924	4	921216	930204
95	CNDUCTVY AT 25C MICROMHO	84	1022	1245	6700	17	560329	900605
300	DO MG/L	53	10.3	3.73	13.5	0.2	690723	930204
301	DO SATUR PERCENT	11	79	14.3	99	51	690723	700710
310	BOD 5 DAY MG/L	50	267.2	1290	7862	0	690724	830601
400	PH SU	140	7.5	0.86	11.9	3.3	510514	930305
410	T ALK CACO3 MG/L	42	173.3	96.2	415	59	410701	840802
500	RESIDUE TOTAL MG/L	10	451.4	177.1	740	218	690724	700625
530	RESIDUE TOT NFLT MG/L	74	6810	45998	381302	1	690724	830601
605	ORG N N MG/L	25	164.2	785.4	3931	0.06	830601	930204
608	NH3+NH4- N DISS MG/L	9	0.121	0.159	0.48	0.01	690724	700625
610	NH3+NH4- N TOTAL MG/L	52	14.35	63.29	393.1	0.01	700416	930204
618	NO3-N DISS MG/L	17	0.144	0.217	0.68	0	410701	710910
620	NO3-N TOTAL MG/L	9	3.244	7.252	22	0.05	860617	860618
625	TOT KJEL N MG/L	20	2.48	2.576	8.2	0.2	741022	760917
630	NO2&NO3 N-TOTAL MG/L	41	247.49	1094.1	5896.4	0.01	760914	930204
665	PHOS-TOT MG/L P	57	30.785	193.3	1454.5	0.02	690724	930204
680	T ORG C C MG/L	28	2289	8560	39309	0.4	830601	930204
681	D ORG C C MG/L	10	3.99	0.44338	4.9	3.5	921216	930204
685	T. INORG C MG/L	16	68.9	45.8	150	25	921216	930204
1045	IRON FE,TOT UG/L	99	6666.7	32097	298000	0	510514	930304
1046	IRON FE,DISS UG/L	7	441.7	349.9	990	48	470218	840802
39530	MALATHN WHL SMPL UG/L	4	0.05	0	0.05	0.05	860617	860618
39570	DIAZINON WHL SMPL UG/L	11	0.05	0	0.05	0.05	860617	860618
39600	MPARATHN WHL SMPL UG/L	11	0.05	0	0.05	0.05	860617	860618
39630	ATRAZINE WHL SMPL UG/L	11	0.5	0	0.5	0.5	860617	860618
39730	2,4-D WHL SMPL UG/L	11	0.01	0	0.01	0.01	860617	860618
39740	2,4,5-T WHL SMPL UG/L	11	0.011	0.003	0.02	0.01	860617	860618
39750	SEVIN WHL SMPL UG/L	11	1	0	1	1	860617	860618
39785	GBHC-TIS LINDANE WETMG/KG	12	0.001	0	0.001	0.001	860617	910909
81757	CYANAZIN WHL WAT UG/L	11	0.5	0	0.5	0.5	860617	860618

Table B3. Selected water quality data from USGS NAWQA studies at Rives and Morehouse, MO.												
								DISSOLVED	TOTAL	DISSOLVED	TOTAL	DISSOLVED
				INST.	SPECIFIC	DISSOLVED	pH, WH,	NITROGEN,	NITROGEN	NITROGEN,	NITROGEN	NITROGEN,
				DISCH.	CONDUCT	OXYGEN	FIELD	AMMONIA	AMMONIA	NITRITE	NITRITE	AMM + ORG
				(cfs)	(uS/cm)	(mg/l)	(standard u	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)
Latitude	Longitude	Date	Time	61	95	300	400	608	610	613	615	623
365003	894348	19960227	1030	155	712	9	7.9	0.02	-999	0.01	-999	0.2
365003	894348	19960213	1015	156	569	10.8	7.9	0.015	-999	0.01	-999	0.2
365003	894348	19960312	815	171	521	5.2	8	0.06	-999	0.02	-999	0.2
365003	894348	19960404	745	404	428	8.2	7.9	0.06	-999	0.02	-999	0.4
365003	894348	19960409	730	219	522	9.6	8	0.05	-999	0.01	-999	0.2
365003	894348	19951018	1040	-999	-999	-999	-999	-999	-999	-999	-999	-999
365003	894348	19951018	1450	-999	-999	-999	-999	-999	-999	-999	-999	-999
365003	894348	19951018	1445	-999	-999	-999	-999	-999	-999	-999	-999	-999
365003	894348	19951018	1500	-999	-999	-999	-999	-999	-999	-999	-999	-999
365003	894348	19960507	1000	4750	99	6.2	7.1	1.9	-999	0.04	-999	0.6
365003	894348	19960424	1515	2480	132	7.2	7.3	0.4	-999	0.06	-999	1
365003	894348	19960521	945	348	575	6.8	7.7	0.02	-999	0.02	-999	0.2
365003	894348	19960605	905	250	558	7	7.8	0.02	-999	0.02	-999	0.2
365003	894348	19960619	1245	290	459	6.1	8	0.02	-999	0.02	-999	0.2
365003	894348	19960710	1315	96	505	8.4	8.2	0.03	-999	0.02	-999	0.3
365003	894348	19960724	645	73	585	7.1	8.2	0.07	-999	0.02	-999	0.2
365003	894348	19960813	950	49	592	7.8	7.9	0.04	-999	0.01	-999	0.2
365003	894348	19960820	950	43	571	6.9	8.1	0.015	-999	0.01	-999	0.2
365003	894348	19960904	1400	42	558	9.5	8.4	0.02	-999	0.01	-999	0.2
365003	894348	19960917	1420	130	297	7.2	7.8	0.03	-999	0.01	-999	0.4
365003	894348	19960830	800	-999	600	6	8	-999	-999	-999	-999	-999
365003	894348	19960830	1200	-999	598	7.2	8.2	-999	-999	-999	-999	-999
365003	894348	19960627	930	-999	616	9.4	7.9	-999	-999	-999	-999	-999
365003	894348	19951018	1100	-999	545	8.9	7.8	-999	-999	-999	-999	-999
365003	894348	19961002	1256	-999	540	8.9	7.7	-999	-999	-999	-999	-999
365003	894348	19961002	1259	-999	497	9.1	7.7	-999	-999	-999	-999	-999
365003	894348	19961002	1302	-999	490	8.8	7.8	-999	-999	-999	-999	-999
365003	894348	19961002	1304	-999	490	8.9	7.7	-999	-999	-999	-999	-999
365003	894348	19961002	1330	-999	532	8.9	7.8	-999	-999	-999	-999	-999
365003	894348	19961002	1245	96	491	9.7	8.3	0.3	-999	0.01	-999	0.2

Table B3. Selected water quality data from USGS NAWQA studies at Rives and Morehouse, MO.												
								DISSOLVED	TOTAL	DISSOLVED	TOTAL	DISSOLVED
				INST.	SPECIFIC	DISSOLVED	pH, WH,	NITROGEN,	NITROGEN	NITROGEN,	NITROGEN	NITROGEN,
				DISCH.	CONDUCT	OXYGEN	FIELD	AMMONIA	AMMONIA	NITRITE	NITRITE	AMM + ORG
				(cfs)	(uS/cm)	(mg/l)	(standard u	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)
Latitude	Longitude	Date	Time	61	95	300	400	608	610	613	615	623
365003	894348	19961016	1400	71	566	8.1	8.3	0.04	-999	0.01	-999	0.2
365003	894348	19961104	1400	84	568	12.4	8	0.02	-999	0.01	-999	0.2
365003	894348	19961119	1500	154	514	10.7	7.9	0.015	-999	0.01	-999	0.2
365003	894348	19961204	1445	440	370	10.2	7.7	0.05	-999	0.01	-999	0.3
365003	894348	19961218	1400	948	218	11.8	7.4	0.06	-999	0.01	-999	0.4
365003	894348	19970114	1430	265	557	-999	8	0.05	-999	0.03	-999	0.2
365003	894348	19970127	1400	1030	221	10.5	7.6	0.09	-999	0.01	-999	0.4
365003	894348	19970205	1430	2210	133	10.3	7.2	0.13	-999	0.02	-999	0.5
365003	894348	19970218	1500	350	501	10.8	8.1	0.015	-999	0.01	-999	0.2
365003	894348	19970304	1400	4320	94	9.4	7.1	0.07	-999	0.02	-999	0.5
365003	894348	19970313	1130	590	396	7.4	7.7	0.1	-999	0.02	-999	0.5
365003	894348	19970317	1530	725	353	9.9	7.8	0.11	-999	0.02	-999	0.5
365003	894348	19970324	1530	388	509	9.2	7.9	0.02	-999	0.01	-999	0.2
365003	894348	19970401	1330	344	493	10.1	7.9	0.02	-999	0.02	-999	0.2
365003	894348	19970407	1530	3970	105	7.7	7.3	0.28	-999	0.04	-999	0.8
365003	894348	19970414	1410	532	374	9.5	7.7	0.06	-999	0.02	-999	0.3
365003	894348	19970425	830	290	542	8.9	7.7	0.015	-999	0.01	-999	0.2
365003	894348	19970429	1015	357	525	8.3	8.1	0.015	-999	0.011	-999	0.21
365003	894348	19970508	1105	365	468	8.3	7.9	0.015	-999	0.043	-999	0.2
365003	894348	19970512	1515	276	550	9.4	8.1	0.015	-999	0.01	-999	0.2
365003	894348	19970521	1400	362	447	9.1	8	0.015	-999	0.017	-999	0.33
365003	894348	19970527	1500	1330	203	6.8	7	0.469	-999	0.101	-999	1.1
365003	894348	19970605	1315	446	461	7.7	7.6	0.091	-999	0.097	-999	0.34
365003	894348	19970610	1310	336	502	8.2	7.6	0.047	-999	0.036	-999	0.2
365003	894348	19970616	1315	517	391	7	7.3	0.071	-999	0.099	-999	0.46
365003	894348	19970623	1315	1430	198	4.9	6.8	0.062	-999	0.052	-999	0.53
365003	894348	19970630	1345	463	361	6.8	8	0.075	-999	0.03	-999	0.36
365003	894348	19970710	855	801	260	5.7	7.7	0.035	-999	0.031	-999	0.45
365003	894348	19970714	1422	247	445	7	7.9	0.043	-999	0.021	-999	0.2
365003	894348	19970723	945	186	431	6.1	7.8	0.045	-999	0.017	-999	0.24

Table B3. Selected water quality data from USGS NAWQA studies at Rives and Morehouse, MO.												
								DISSOLVED	TOTAL	DISSOLVED	TOTAL	DISSOLVED
				INST.	SPECIFIC	DISSOLVED	pH, WH,	NITROGEN,	NITROGEN	NITROGEN,	NITROGEN	NITROGEN,
				DISCH.	CONDUCT	OXYGEN	FIELD	AMMONIA	AMMONIA	NITRITE	NITRITE	AMM + ORG
				(cfs)	(uS/cm)	(mg/l)	(standard u	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)
Latitude	Longitude	Date	Time	61	95	300	400	608	610	613	615	623
365003	894348	19970730	935	1590	87	5.8	7.1	0.102	-999	0.018	-999	0.71
365003	894348	19970814	930	98	461	7.7	8.1	0.015	-999	0.012	-999	0.3
365003	894348	19970903	1345	111	488	7.2	8.1	0.015	-999	0.01	-999	0.24
365003	894348	19970826	1310	118	456	8.3	8	0.015	-999	0.014	-999	0.2
365003	894348	19970918	915	83	550	7.1	7.9	0.015	-999	0.01	-999	0.2
365003	894348	19970904	1145	105	585	7.6	7.9	-999	-999	-999	-999	-999
365003	894348	19971022	1215	91	564	11.1	8.1	0.015	-999	0.01	-999	0.2
365003	894348	19971103	1315	101	564	11.2	8.1	0.02	-999	0.027	-999	0.1
365003	894348	19971216	1315	144	548	12.5	7.6	0.02	-999	0.01	-999	0.1
365003	894348	19980105	1430	179	555	9.4	8.1	0.02	-999	0.01	-999	0.17
365003	894348	19980903	730	100	577	6.8	7.8	-999	-999	-999	-999	-999
365003	894348	19980709	900	120	580	6	7.5	-999	-999	-999	-999	-999
360525	900447	19941004	1930					-999	0.02	-999	0.01	-999
360525	900447	19941108	1300					-999	0.08	-999	0.04	-999
360525	900447	19941219	1400					-999	0.14	-999	0.03	-999
360525	900447	19950124	1250					-999	0.09	-999	0.03	-999
360525	900447	19950214	930					-999	0.02	-999	0.01	-999
360525	900447	19950315	630					-999	0.05	-999	0.02	-999
360525	900447	19951419	800					-999	0.02	-999	0.01	-999
360525	900447	19950522	1700					-999	0.08	-999	0.06	-999
360525	900447	19950620	730					-999	0.01	-999	0.01	-999
360525	900447	19950712	1030					-999	0.06	-999	0.03	-999
360525	900447	19950726	1130					-999	0.1	-999	0.05	-999
360525	900447	19950808	1000					-999	0.05	-999	0.02	-999
360525	900447	19950905	1500					-999	0.01	-999	0.01	-999
360525	900447	19951030	1340					-999	0.1	-999	0.03	-999
360525	900447	19951125						-999	-999	-999	-999	-999
360525	900447	19951128	1030					-999	0.05	-999	0.01	-999
360525	900447	19951212	1610					-999	0.03	-999	0.06	-999
360525	900447	19960130	1015					-999	0.24	-999	0.04	-999

Table B3. Selected water quality data from USGS NAWQA studies at Rives and Morehouse, MO.												
								DISSOLVED	TOTAL	DISSOLVED	TOTAL	DISSOLVED
				INST.	SPECIFIC	DISSOLVED	pH, WH,	NITROGEN,	NITROGEN	NITROGEN,	NITROGEN	NITROGEN,
				DISCH.	CONDUCT	OXYGEN	FIELD	AMMONIA	AMMONIA	NITRITE	NITRITE	AMM + ORG
				(cfs)	(uS/cm)	(mg/l)	(standard u	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)
Latitude	Longitude	Date	Time	61	95	300	400	608	610	613	615	623
360525	900447	19960213	930					-999	0.04	-999	0.01	-999
360525	900447	19960313	1445					-999	0.07	-999	0.02	-999
360525	900447	19960409	1058					-999	0.04	-999	0.01	-999
360525	900447	19960507	1235					-999	0.17	-999	0.05	-999
360525	900447	19960611	1105					-999	0.16	-999	0.13	-999
360525	900447	19960718	1030					-999	0.01	-999	0.01	-999
360525	900447	19960813	1030					-999	0.03	-999	0.01	-999
360525	900447	19960910	1100					-999	0.06	-999	0.01	-999
360525	900447	19961022	1130					-999	0.03	-999	0.01	-999
360525	900447	19961120	1530					-999	0.04	-999	0.03	-999
360525	900447	19961217	1400					-999	0.11	-999	0.06	-999
360525	900447	19970122	1730					-999	0.13	-999	0.03	-999
360525	900447	19970219	1715					-999	0.06	-999	0.02	-999
360525	900447	19970325	1600					-999	0.08	-999	0.01	-999
360525	900447	19970416	1315					-999	0.07	-999	0.03	-999
360525	900447	19970528	1530					-999	0.51	-999	0.12	-999
360525	900447	19970611	1215					-999	0.19	-999	0.01	-999
360525	900447	19970722	1530					-999	0.01	-999	0.01	-999
360525	900447	19970806	1100					-999	0.02	-999	0.01	-999
360525	900447	19970904	1130					-999	0.03	-999	0.01	-999
360525	900447	19971021	1430					0.02	-999	0.01	-999	0.3
360525	900447	19971104	1355					0.02	-999	0.03	-999	0.1
360525	900447	19971217	1245					0.02	-999	0.01	-999	0.3
360525	900447	19980106	1030					0.02	-999	0.01	-999	0.4
360525	900447	19980203	1345					0.11	-999	0.01	-999	0.3
360525	900447	19980303	1410					0.07	-999	0.01	-999	1.1
360525	900447	19980421	1145					0.12	-999	0.02	-999	0.7
360525	900447	19980521	1530					0.08	-999	0.01	-999	0.2
360525	900447	19980609	1515					0.54	-999	0.17	-999	1
360525	900447	19980707	1100					0.02	-999	0.01	-999	0.2

Table B3. Selected water quality data from USGS NAWQA studies at Rives and Morehouse, MO.												
								DISSOLVED	TOTAL	DISSOLVED	TOTAL	DISSOLVED
				INST.	SPECIFIC	DISSOLVED	pH, WH,	NITROGEN,	NITROGEN	NITROGEN,	NITROGEN	NITROGEN,
				DISCH.	CONDUCT	OXYGEN	FIELD	AMMONIA	AMMONIA	NITRITE	NITRITE	AMM + ORG
				(cfs)	(uS/cm)	(mg/l)	(standard u	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as N)
Latitude	Longitude	Date	Time	61	95	300	400	608	610	613	615	623
360525	900447	19980810	1415					0.12	-999	0.03	-999	0.7
360525	900447	19980909	1145					0.05	-999	0.01	-999	0.2

TOTAL	TOTAL	DISSOLVED			DISS.				PHOSP	SUSP.	
NITROGEN	NITROGEN	NITROGEN	TOTAL	DISSOLVED	PHOSPI	CARBON	CARBON	SOLIDS I	ORTHO	RESIDUE	DISS.
AMM + OR(	NO2 + NO2	NO2 + NO3	PHOSPH	PHOSPHOR	ORTHO	ORGANIC	ORGANIC	@ 180 C	TOTAL	@105 C	IRON
(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as	(mg/l as P)	(mg/l as	(mg/l)	(mg/l)	(mg/l)	(mg/l as	(mg/l)	(ug/l as Fe)
625	630	631	665	666	671	681	689	70300	70507	530	1046
0.7	-999	0.06	0.09	0.04	0.03	2.4	0.7	-999	-999	-999	6
0.2	-999	0.12	0.05	0.03	0.02	2.4	0.6	-999	-999	-999	34
0.4	-999	0.3	0.11	0.06	0.03	2.3	0.9	-999	-999	-999	15
0.5	-999	0.53	0.16	0.04	0.04	3.4	1.7	-999	-999	-999	23
0.3	-999	0.2	0.1	0.03	0.03	1.7	0.6	-999	-999	-999	16
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
1.9	-999	1.5	0.61	0.11	0.12	11	10	-999	-999	-999	110
1.2	-999	2.1	0.11	0.1	0.11	8	6.5	-999	-999	-999	110
0.4	-999	0.13	0.17	0.04	0.04	2.2	0.9	-999	-999	-999	32
0.4	-999	0.16	0.16	0.05	0.05	2.2	0.1	-999	-999	-999	5
0.8	-999	0.37	0.22	0.05	0.05	3	2	-999	-999	-999	3
0.4	-999	0.4	0.11	0.04	0.06	3.4	1.1	-999	-999	-999	11
0.5	-999	0.17	0.12	0.07	0.09	3.2	0.2	-999	-999	-999	-999
0.3	-999	0.14	0.07	0.05	0.08	2.4	0.4	-999	-999	-999	6
0.3	-999	0.08	0.12	0.07	0.07	2.1	0.5	-999	-999	-999	3
0.2	-999	0.08	0.08	0.05	0.07	1.7	0.6	-999	-999	-999	4
1.1	-999	0.45	0.31	0.06	0.07	5.1	2.8	-999	-999	-999	8
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
0.2	-999	0.2	0.2	0.06	0.025	2.7	0.6	-999	-999	-999	3

TOTAL	TOTAL	DISSOLVED			DISS.				PHOSP	SUSP.	
NITROGEN	NITROGEN	NITROGEN	TOTAL	DISSOLVED	PHOSPI	CARBON	CARBON	SOLIDS I	ORTHO	RESIDUE	DISS.
AMM + ORC	NO2 + NO2	NO2 + NO3	PHOSPH	PHOSPHOR	ORTHO	ORGANIC	ORGANIC	@ 180 C	TOTAL	@105 C	IRON
(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as	(mg/l as P)	(mg/l as	(mg/l)	(mg/l)	(mg/l)	(mg/l as	(mg/l)	(ug/l as Fe)
625	630	631	665	666	671	681	689	70300	70507	530	1046
0.2	-999	0.05	0.07	0.04	0.025	2.7	0.6	-999	-999	-999	5
0.2	-999	0.05	0.05	0.04	0.025	2.7	0.6	-999	-999	-999	3
0.3	-999	0.15	0.13	0.05	0.025	2.7	0.6	-999	-999	-999	17
0.7	-999	0.23	0.25	0.08	0.025	2.7	0.6	-999	-999	-999	18
0.9	-999	0.34	0.33	0.1	0.025	2.7	0.6	-999	-999	-999	31
0.4	-999	0.16	0.09	0.02	0.025	2.7	0.6	-999	-999	-999	4
0.9	-999	0.31	0.35	0.07	0.025	2.7	0.6	-999	-999	-999	23
1.8	-999	0.55	0.47	0.11	0.025	2.7	0.6	-999	-999	-999	24
0.3	-999	0.14	0.07	0.01	0.025	2.7	0.6	-999	-999	-999	4
1.6	-999	0.22	0.47	0.08	0.025	2.7	0.6	-999	-999	-999	470
0.7	-999	0.33	0.19	0.02	0.025	2.7	0.6	-999	-999	-999	180
0.8	-999	0.32	0.2	0.04	0.025	2.7	0.6	-999	-999	-999	200
0.5	-999	0.21	0.12	0.04	0.025	2.7	0.6	-999	-999	-999	80
0.4	-999	0.3	0.12	0.04	0.025	2.7	0.6	-999	-999	-999	52
1.8	-999	0.73	0.64	0.16	0.025	2.7	0.6	-999	-999	-999	410
0.6	-999	0.41	0.23	0.06	0.025	2.7	0.6	-999	-999	-999	210
0.24	-999	0.052	0.068	0.02	0.025	2.7	0.6	-999	-999	-999	14
0.43	-999	0.282	0.09	0.016	0.025	-999	0.6	-999	-999	-999	23
0.49	-999	0.381	0.183	0.091	0.067	7.4	0.7	-999	-999	-999	120
0.27	-999	0.128	0.111	0.038	0.04	2.3	0.2	-999	-999	-999	3
0.74	-999	0.28	0.228	0.037	0.036	3.4	0.5	-999	-999	-999	20
2.5	-999	2.77	0.564	0.071	0.062	6.3	3.5	-999	-999	-999	350
0.53	-999	1.25	0.164	0.041	0.037	3.2	0.8	-999	-999	-999	130
0.54	-999	0.516	0.149	0.018	0.03	2.8	0.5	-999	-999	-999	79
0.95	-999	1.47	0.279	0.052	0.052	3.9	1.1	-999	-999	-999	130
1.1	-999	0.641	0.347	0.123	0.11	7.6	1.8	-999	-999	-999	230
1.4	-999	0.472	0.416	0.053	0.051	4.3	1.5	-999	-999	-999	5
0.94	-999	0.577	0.25	0.054	0.061	5.5	2.4	-999	-999	-999	94
0.49	-999	0.248	0.179	0.051	0.065	4.4	1.2	-999	-999	-999	100
0.67	-999	0.211	0.172	0.053	0.074	3.7	1.1	-999	-999	-999	3

TOTAL	TOTAL	DISSOLVED			DISS.				PHOSP	SUSP.	
NITROGEN	NITROGEN	NITROGEN	TOTAL	DISSOLVED	PHOSPI	CARBON	CARBON	SOLIDS I	ORTHO	RESIDUE	DISS.
AMM + ORG	NO2 + NO2	NO2 + NO3	PHOSPH	PHOSPHOR	ORTHO	ORGANIC	ORGANIC	@ 180 C	TOTAL	@105 C	IRON
(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as	(mg/l as P)	(mg/l as	(mg/l)	(mg/l)	(mg/l)	(mg/l as	(mg/l)	(ug/l as Fe)
625	630	631	665	666	671	681	689	70300	70507	530	1046
0.99	-999	0.388	0.176	0.027	0.024	6.8	5	-999	-999	-999	130
0.4	-999	0.104	0.092	0.06	0.067	2.9	1.2	-999	-999	-999	16
0.67	-999	0.098	0.232	0.09	0.089	4.3	0.8	-999	-999	-999	9
0.32	-999	0.136	0.126	0.061	0.082	2.7	0.7	-999	-999	-999	4
0.2	-999	-999	0.098	0.047	0.056	1.8	0.3	-999	-999	-999	4
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
0.2	-999	0.05	0.046	0.034	0.038	1.5	0.2	-999	-999	-999	12
0.12	-999	0.077	0.038	0.025	0.029	1.6	0.2	-999	-999	-999	8
0.16	-999	0.05	0.026	0.021	0.014	1.8	0.4	-999	-999	-999	24
0.31	-999	0.094	0.085	0.036	0.042	3.7	0.8	-999	-999	-999	52
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
0.29	0.02	-999	0.15	-999	-999			-999	0.1	-999	-999
1.3	0.24	-999	0.44	-999	-999			-999	0.36	150	-999
1.2	0.34	-999	0.44	-999	-999			-999	0.24	-999	-999
0.71	0.25	-999	0.31	-999	-999			-999	0.23	70	-999
0.2	0.09	-999	0.05	-999	-999			-999	0.06	-999	-999
0.47	0.23	-999	0.2	-999	-999			-999	0.12	-999	-999
0.37	0.05	-999	0.16	-999	-999			-999	0.1	-999	-999
0.88	0.96	-999	0.28	-999	-999			-999	0.12	-999	-999
0.48	0.06	-999	0.23	-999	-999			-999	0.09	64	-999
0.83	0.36	-999	0.15	-999	-999			-999	0.15	-999	-999
0.94	0.61	-999	0.35	-999	-999			-999	0.22	-999	-999
0.77	0.31	-999	0.16	-999	-999			-999	0.12	56	-999
0.38	0.02	-999	0.15	-999	-999			-999	0.12	-999	-999
0.97	0.34	-999	0.55	-999	-999			-999	0.41	-999	-999
-999	-999	-999	-999	-999	-999			-999	-999	-999	-999
0.35	0.27	-999	0.19	-999	-999			212	0.13	41	43
0.21	0.06	-999	0.06	-999	-999			-999	0.06	-999	-999
1	0.52	-999	0.32	-999	-999			190	0.23	140	26

TOTAL	TOTAL	DISSOLVED			DISS.				PHOSP	SUSP.	
NITROGEN	NITROGEN	NITROGEN	TOTAL	DISSOLVED	PHOSPI	CARBON	CARBON	SOLIDS I	ORTHO	RESIDUE	DISS.
AMM + ORC	NO2 + NO2	NO2 + NO3	PHOSPH	PHOSPHOR	ORTHO	ORGANIC	ORGANIC	@ 180 C	TOTAL	@105 C	IRON
(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as	(mg/l as P)	(mg/l as	(mg/l)	(mg/l)	(mg/l)	(mg/l as	(mg/l)	(ug/l as Fe)
625	630	631	665	666	671	681	689	70300	70507	530	1046
0.28	0.12	-999	0.08	-999	-999			-999	0.07	-999	-999
0.65	0.4	-999	0.19	-999	-999			-999	0.12	-999	-999
0.4	0.28	-999	0.1	-999	-999			-999	0.07	-999	-999
1.1	0.99	-999	0.38	-999	-999			-999	0.18	-999	-999
2.1	1.6	-999	0.54	-999	-999			116	0.34	520	20
0.93	0.04	-999	0.24	-999	-999			-999	0.11	-999	-999
0.54	0.02	-999	0.18	-999	-999			214	0.18	48	6
0.25	0.02	-999	0.17	-999	-999			-999	0.13	-999	-999
0.38	0.02	-999	0.13	-999	-999			-999	0.09	-999	-999
0.78	0.29	-999	0.32	-999	-999			144	0.26	98	20
1.6	0.34	-999	0.51	-999	-999			-999	0.35	-999	-999
1.6	0.78	-999	0.48	-999	-999			100	0.21	250	100
0.38	0.21	-999	0.14	-999	-999			-999	0.09	-999	-999
0.35	0.26	-999	0.13	-999	-999			-999	0.07	-999	-999
0.51	0.44	-999	0.18	-999	-999			-999	0.11	-999	-999
3.4	2.4	-999	0.89	-999	-999			-999	0.33	-999	-999
0.95	0.02	-999	0.1	-999	-999			216	0.04	56	9
0.8	0.02	-999	0.2	-999	-999			-999	0.13	-999	-999
0.54	0.02	-999	0.16	-999	-999			202	0.11	60	10
0.62	0.02	-999	0.16	-999	-999			-999	0.13	-999	-999
-999	-999	0.05	-999	0.07	0.08			-999	-999	-999	-999
-999	-999	0.08	-999	0.04	0.06			251	-999	15	8
-999	-999	0.09	-999	0.08	0.05			-999	-999	-999	
-999	-999	0.17	-999	0.07	0.08			201	-999	106	46
-999	-999	0.16	-999	0.06	0.08			-999	-999	-999	-999
-999	-999	0.49	-999	0.09	0.08			-999	-999	-999	-999
-999	-999	0.42	-999	0.12	0.1			-999	-999	-999	-999
-999	-999	0.05	-999	0.07	0.08			-999	-999	-999	-999
-999	-999	1.9	-999	0.11	0.11			128	-999	102	80
-999	-999	0.05	-999	0.1	0.1			-999	-999	-999	

TOTAL	TOTAL	DISSOLVED			DISS.				PHOSP	SUSP.	
NITROGEN	NITROGEN	NITROGEN	TOTAL	DISSOLVED	PHOSPI	CARBON	CARBON	SOLIDS I	ORTHO	RESIDUE	DISS.
AMM + ORG	NO2 + NO2	NO2 + NO3	PHOSPH	PHOSPHOR	ORTHO	ORGANIC	ORGANIC	@ 180 C	TOTAL	@105 C	IRON
(mg/l as N)	(mg/l as N)	(mg/l as N)	(mg/l as	(mg/l as P)	(mg/l as	(mg/l)	(mg/l)	(mg/l)	(mg/l as	(mg/l)	(ug/l as Fe)
625	630	631	665	666	671	681	689	70300	70507	530	1046
-999	-999	0.28	-999	0.16	0.16			83	-999	50	240
-999	-999	0.05	-999	0.15	0.13						

Table B4. Selected pesticide data from USGS NAWQA studies at Rives and Morehouse, M							
				DISSOLVE	DISSOLVE	DISSOLVE	DIETHYL
				PROPACH	SIMAZINE	PROMETC	ATRAZINE
				(ug/l)	(ug/l)	(ug/l)	(ug/l)
Latitude	Longitude	Date	Time	#04024	#04035	#04037	#04040
365003	894348	19960227	1030	.0070<	.0050<	.0180E	.0020<
365003	894348	19960213	1015	.0070<	.0050<	.0180E	.0050<
365003	894348	19960312	815	.0070<	.0050<	.0180E	.0040<
365003	894348	19960404	745	.0070<	.0030<	.0180E	.0120<
365003	894348	19960409	730	.0070<	.0050<	.0180E	.0080<
365003	894348	19951018	1040	-999	-999	-999	-999
365003	894348	19951018	1450	-999	-999	-999	-999
365003	894348	19951018	1445	-999	-999	-999	-999
365003	894348	19951018	1500	-999	-999	-999	-999
365003	894348	19960507	1000	.0070<	.170E	.0140E	.570E
365003	894348	19960424	1515	.0070<	.190<	.0180E	0.3
365003	894348	19960521	945	.0070<	.0230<	.0180E	0.055
365003	894348	19960605	905	.0070<	.0210<	.0180E	0.086
365003	894348	19960619	1245	.0070<	.0270E	.0050E	0.26
365003	894348	19960710	1315	.0070<	.0150E	.0050E	0.14
365003	894348	19960724	645	.0070<	.0040E	.0040E	0.079
365003	894348	19960813	950	.0070<	.0050<	.0180E	0.009
365003	894348	19960820	950	.0070<	.0050<	.0180E	0.0246
365003	894348	19960904	1400	.0070<	.0050<	.0180E	.0023<
365003	894348	19960917	1420	.0070<	.0050<	.0180E	0.0379
365003	894348	19960830	800	-999	-999	-999	-999
365003	894348	19960830	1200	-999	-999	-999	-999
365003	894348	19960627	930	-999	-999	-999	-999
365003	894348	19951018	1100	-999	-999	-999	-999
365003	894348	19961002	1256	-999	-999	-999	-999
365003	894348	19961002	1259	-999	-999	-999	-999
365003	894348	19961002	1302	-999	-999	-999	-999
365003	894348	19961002	1304	-999	-999	-999	-999
365003	894348	19961002	1330	-999	-999	-999	-999
365003	894348	19961002	1245	.0070<	.0050<	.0180E	.0022<
365003	894348	19961016	1400	.0070<	.0050<	.0180<	.0020<
365003	894348	19961104	1400	.0070<	.0050<	.0180E	.0056<
365003	894348	19961119	1500	.0070<	.0050<	.0180E	.0118<
365003	894348	19961204	1445	.0070<	.0050<	.0180E	.0133<
365003	894348	19961218	1400	.0070<	.0050<	.0180E	.0177<
365003	894348	19970114	1430	.0070<	.0050<	.0180E	.0018<
365003	894348	19970127	1400	.0070<	.0050<	.0180E	.0031<
365003	894348	19970205	1430	.0070<	.0050<	.0180E	.0128<
365003	894348	19970218	1500	.0070<	.0050<	.0180E	.0016<
365003	894348	19970304	1400	.0070<	.0050<	.0180E	.0136<
365003	894348	19970313	1130	.0070<	.0050<	.0180E	.0039<
365003	894348	19970317	1530	.0070<	.0050<	.0180E	.0043<
365003	894348	19970324	1530	.0070<	.0050<	.0180E	.0028<
365003	894348	19970401	1330	.0070<	.0036<	.0180E	0.0059
365003	894348	19970407	1530	.0070<	.0335E	.0067E	0.0632
365003	894348	19970414	1410	.0070<	0.0093	.0225E	0.0229
365003	894348	19970425	830	.0070<	.0068E	.0055E	0.0205

Table B4. Selected pesticide data from USGS NAWQA studies at Rives and Morehouse, M							
				DISSOLVE	DISSOLVE	DISSOLVE	DIETHYL
				PROPACH	SIMAZINE	PROMETO	ATRAZINE
				(ug/l)	(ug/l)	(ug/l)	(ug/l)
Latitude	Longitude	Date	Time	#04024	#04035	#04037	#04040
365003	894348	19970429	1015	.0070<	.0153<	.0180E	0.065
365003	894348	19970508	1105	.0070<	.0229<	.0180E	0.0632
365003	894348	19970512	1515	.0070<	.0050<	.0180E	0.027
365003	894348	19970521	1400	.0070<	.0411<	.0180E	0.274
365003	894348	19970527	1500	.0070<	.0329E	.0122E	0.164
365003	894348	19970605	1315	.0070<	.0156E	.0044E	0.245
365003	894348	19970610	1310	.0070<	.0082<	.0180E	0.143
365003	894348	19970616	1315	.0070<	.0192E	.0128E	0.252
365003	894348	19970623	1315	.0070<	.0146E	.0078E	0.532
365003	894348	19970630	1345	.0070<	.0081E	.0041E	0.0321
365003	894348	19970710	855	.0070<	0.0076	.0488E	0.0961
365003	894348	19970714	1422	.0070<	0.0694	.0296E	0.101
365003	894348	19970723	945	.0070<	0.005	.108E	0.053
365003	894348	19970730	935	.0070<	.0050E	.0056E	.0087<
365003	894348	19970814	930	.0070<	.0039E	.0066E	.0138<
365003	894348	19970903	1345	.0070<	.0050<	.0180E	.0082E
365003	894348	19970826	1310	.0070<	.0050<	.0180E	.0073<
365003	894348	19970918	915	.0070<	.0050<	.0180E	.0041<
365003	894348	19970904	1145	-999	-999	-999	-999
365003	894348	19971022	1215	.0070<	.0050<	.0180E	.0015<
365003	894348	19971103	1315	.0070<	.0050<	.0180E	.0010<
365003	894348	19971216	1315	.0070<	.0050<	.0180E	.0012<
365003	894348	19980105	1430	.0070<	.0050<	.0180E	.0016<
365003	894348	19980903	730	-999	-999	-999	-999
365003	894348	19980709	900	-999	-999	-999	-999
360525	900447	19941004	1930	-999	-999	-999	-999
360525	900447	19941108	1300	-999	-999	-999	-999
360525	900447	19941219	1400	-999	-999	-999	-999
360525	900447	19950124	1250	-999	-999	-999	-999
360525	900447	19950214	930	-999	-999	-999	-999
360525	900447	19950315	630	-999	-999	-999	-999
360525	900447	19951419	800	-999	-999	-999	-999
360525	900447	19950522	1700	-999	-999	-999	-999
360525	900447	19950620	730	-999	-999	-999	-999
360525	900447	19950712	1030	-999	-999	-999	-999
360525	900447	19950726	1130	-999	-999	-999	-999
360525	900447	19950808	1000	-999	-999	-999	-999
360525	900447	19950905	1500	-999	-999	-999	-999
360525	900447	19951030	1340	-999	-999	-999	-999
360525	900447	19951125		-999	-999	<.018	E.004
360525	900447	19951128	1030	<.007	<.005	-999	-999
360525	900447	19951212	1610	-999	-999	-999	-999
360525	900447	19960130	1015	-999	-999	-999	-999
360525	900447	19960213	930	-999	-999	-999	-999
360525	900447	19960313	1445	<.007	<.005	<.018	E.006
360525	900447	19960409	1058	<.007	<.005	<.018	E.009
360525	900447	19960507	1235	<.007	0.04	<.018	E.28

Table B4. Selected pesticide data from USGS NAWQA studies at Rives and Morehouse, M							
				DISSOLVE	DISSOLVE	DISSOLVE	DIETHYL
				PROPACH	SIMAZINE	PROMETC	ATRAZINE
				(ug/l)	(ug/l)	(ug/l)	(ug/l)
Latitude	Longitude	Date	Time	#04024	#04035	#04037	#04040
360525	900447	19960611	1105	<.007	0.021	E.005	E.240
360525	900447	19960718	1030	-999	-999	-999	-999
360525	900447	19960813	1030	<.007	<.005	<.018	E.012
360525	900447	19960910	1100	-999	-999	-999	-999
360525	900447	19961022	1130	-999	-999	-999	-999
360525	900447	19961120	1530	0.009	<.005	<.018	E.011
360525	900447	19961217	1400	-999	-999	-999	-999
360525	900447	19970122	1730	<.007	-999	-999	-999
360525	900447	19970219	1715	-999	-999	-999	-999
360525	900447	19970325	1600	<.007	<.005	<.018	<.002
360525	900447	19970416	1315	<.007	0.014	E.002	E.025
360525	900447	19970528	1530	<.007	0.079	<.018	E.316
360525	900447	19970611	1215	<.007	0.009	<.018	E.053
360525	900447	19970722	1530	-999	-999	-999	-999
360525	900447	19970806	1100	<.007	0.007	E.007	E.011
360525	900447	19970904	1130	-999	-999	-999	-999
360525	900447	19971021	1430	-999	-999	-999	-999
360525	900447	19971104	1355	<.007	<.005	<.018	E.001
360525	900447	19971217	1245	-999	-999	-999	-999
360525	900447	19980106	1030	-999	-999	-999	-999
360525	900447	19980203	1345	-999	-999	-999	-999
360525	900447	19980303	1410	<.007	<.005	<.018	E.001
360525	900447	19980421	1145	<.007	0.023	<.018	E.168
360525	900447	19980521	1530	<.007	<.005	<.018	E.031
360525	900447	19980609	1515	<.007	0.032	<.018	E.277
360525	900447	19980707	1100				
360525	900447	19980810	1415	<.007	<.005	E.007	E.009
360525	900447	19980909	1145				.

O.							
DISSOLVE	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED
CYANAZIN	DICAMBA	LINURON	MCPA	METHIOC/	PROPOXU	BENTAZO	2,4-DB
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#04041	#38442	#38478	#38482	#38501	#38538	#38711	#38746
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0100<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0350<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
5.00<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	0.035
2.50<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.140<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0920<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.160<	.0350<	.0180<	.0500<	.0260<	0.035	.210<	.0350<
.100<	.0350<	.0180<	.0500<	.0260<	0.035	.0800<	.0350<
.0210<	.0350<	.0180<	.0500<	.0260<	0.035	.0600<	.0350E
.0070<	.0350<	.0180<	.0500<	.0260<	0.035	.120<	.0350<
.0202<	.0350<	.0180<	.0500<	.0260<	0.035	.0800<	0.035
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0300<	.0350<
.370<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	0.035
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.0800<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0300<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.0500<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0200<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.0900<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	-999	-999	-999	-999	-999	-999	-999
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0100<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.0092<	.0350<	.0180<	.0500<	.0260<	.0350E	.0100<	.0350<
.439<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.354<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.0508<	.0350<	.0180<	.0500<	.0260<	.0350E	.0100<	.0350<

O.							
DISSOLVE	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED
CYANAZIN	DICAMBA	LINURON	MCPA	METHIOC	PROPOXU	BENTAZO	2,4-DB
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#04041	#38442	#38478	#38482	#38501	#38538	#38711	#38746
.197<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.170<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0569<	.0350<	.0180<	.0500<	.0260<	0.035	.0900<	.0350<
1.24<	.0350<	.0180<	.0500<	.0260<	.0350E	.0100<	.0350E
.0917<	.0350<	.0180<	.0500<	.0260<	0.035	.0700<	0.035
.151<	.0350<	.0180<	.0500<	.0260<	0.035	.0600<	0.035
.0746<	.0350<	.0180<	.0500<	.0260<	.0350E	.0300<	.0350<
.119<	.0350<	.0180<	.0500<	.0260<	.0350E	1.31<	0.035
.112<	.0350<	.0180<	.0500<	.0260<	0.035	.670<	0.035
.0215<	.0350<	.0180<	.0500<	.0260<	0.035	.610<	.0350<
.0242<	.0350<	.0180<	.0500<	.0260<	0.035	.630<	0.035
.186<	.0350<	.0180<	.0500<	.0260<	0.035	.490<	.0350<
.0166<	.0350<	.0180<	.0500<	.0260<	0.035	.280<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.320<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.490<	0.035
.0037<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	0.035	.0400<	.0350<
-999	-999	-999	-999	-999	-999	-999	-999
.0040<	.0350<	.0180<	.0500<	.0260<	.0350<	.0140<	.0350<
.0040<	.0350<	.0180<	.0500<	.0260<	.0350E	.0200<	.0350<
.0040<	.0350<	.0180<	.170<	.0260<	.0350<	.0140<	.240<
.0040<	.0350<	.0180<	.170<	.0260<	.0350E	.0200<	.240<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.021	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.004	-999	-999	-999	-999	-999	-999	-999
0.009	-999	-999	-999	-999	-999	-999	-999
0.72	-999	-999	-999	-999	-999	-999	-999

O.							
DISSOLVE	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED	FILTERED
CYANAZIN	DICAMBA	LINURON	MCPA	METHIOC/	PROPOXU	BENTAZOI	2,4-DB
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#04041	#38442	#38478	#38482	#38501	#38538	#38711	#38746
0.32	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.202	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.032	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.004	-999	-999	-999	-999	-999	-999	-999
0.199	-999	-999	-999	-999	-999	-999	-999
0.208	-999	-999	-999	-999	-999	-999	-999
0.059	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.569	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.004	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.004	-999	-999	-999	-999	-999	-999	-999
0.162	-999	-999	-999	-999	-999	-999	-999
<.004	-999	-999	-999	-999	-999	-999	-999
0.077	-999	-999	-999	-999	-999	-999	-999
	-999	-999	-999	-999	-999	-999	-999
0.057	-999	-999	-999	-999	-999	-999	-999

FILTERED	FILTERED	DISSOLVE	DISSOLVE	DISSOLVE	Wat.	DISSOLVE	DISSOLVE
FLUOMET	OXAMYL	CHLORPY	LINDANE	DIELDRIN	METOLAC	MALATHIC	PARATHIC
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#38811	#38866	#38933	#39341	#39381	#39415	#39532	#39542
.0350<	.0180<	0.004	.004<	.001E	.003<	.005<	.004<
.0100<	.0180<	0.004	.004<	0.001	.009<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.032<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.160<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.097<	.005<	.004<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0600<	.0180<	0.2	.004<	.001E	8.50<	.005<	.004<
.0350<	.0180<	0.004	.004<	.001E	6.40<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.330<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.670<	.005<	.004<
.0350<	0.018	0.01	.004<	0.001	.730<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.100<	.005<	0.004
.0100<	.0180<	0.004	.004<	0.001	.100<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.024<	.005<	.004<
.110<	.0180<	0.004	.004<	0.001	.299<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.019<	.005<	.004<
.150<	.0180<	0.004	.004<	0.001	.146<	.005<	.004<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0350<	.0180<	0.004	.004<	0.001	.021<	.005<	.004<
.0350<	.0180<	0.004	.004<	.001E	.003<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.015<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.039<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.055<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.057<	.005<	.004<
-999	-999999<	0.004	.004<	0.001	.016<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.029<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.042<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.011<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.032<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.014<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.017<	.005<	.004E
.0350<	.0180<	0.004	.004<	0.001	.007<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.104<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	4.09<	.005<	0.004
.0350<	.0180<	0.004	.004<	0.001	.623<	.005<	.004E
.0350<	.0180<	0.004	.004<	0.001	.285<	.005<	.004<

FILTERED	FILTERED	DISSOLVE	DISSOLVE	DISSOLVE	Wat.	DISSOLVE	DISSOLVE
FLUOMET	OXAMYL	CHLORPY	LINDANE	DIELDRIN	METOLAC	MALATHIC	PARATHIC
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#38811	#38866	#38933	#39341	#39381	#39415	#39532	#39542
.0350<	.0180<	0.004	.004<	0.001	.911<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	4.27<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	1.08<	.005<	.004<
.120<	.0180<	0.004	.004<	0.001	4.52<	.005<	.004<
1.05<	.0180E	0.0039	.004<	0.001	9.38<	.005<	0.004
.0500<	.0180<	0.004	.004<	0.001	1.39<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.831<	.005<	.004<
.0700<	.0180<	0.004	.004<	0.001	1.26<	.005<	.004<
.160<	.0180<	0.004	.004<	0.001	1.11<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.416<	.005<	.004<
.100<	.0180<	0.004	.004<	0.001	.707<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	0.222	.016<	.004<
.0350<	.0180<	0.004	.004<	0.001	.242<	.005<	.004<
.0350<	0.018	0.0045	.004<	0.001	.070<	.005<	.004<
.0700<	.0180<	0.004	.004<	0.001	.070<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.066<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.029<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.007<	.005<	.004<
-999	-999	-999	-999	-999	-999	-999	-999
.0350<	.0180<	0.004	.004<	0.001	.008<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.007<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.007<	.005<	.004<
.0350<	.0180<	0.004	.004<	0.001	.009<	.005<	.004<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	-999	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	-999	<.005	<.004
-999	-999	-999	<.004	<.001	-999	<.005	<.004
-999	-999	-999	<.004	<.001	-999	<.005	<.004

FILTERED	FILTERED	DISSOLVE	DISSOLVE	DISSOLVE	Wat.	DISSOLVE	DISSOLVE
FLUOMET	OXAMYL	CHLORPY	LINDANE	DIELDRIN	METOLAC	MALATHIC	PARATHIC
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#38811	#38866	#38933	#39341	#39381	#39415	#39532	#39542
-999	-999	-999	<.004	<.001	-999	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	0.005	-999	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.178	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.023	<.005	<.004
-999	-999	-999	<.004	<.001	1.68	<.005	<.004
-999	-999	-999	<.004	<.001	9.81	<.005	<.004
-999	-999	-999	<.004	<.001	0.873	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.223	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.073	<.005	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.058	<.005	<.004
-999	-999	-999	<.004	<.001	2.39	<.005	<.004
-999	-999	-999	<.004	<.001	0.277	<.005	<.004
-999	-999	-999	<.004	<.001	5.3	0.008	<.004
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	<.004	<.001	0.47	<.005	<.004

DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	FILTERED	FILTERED
DIAZINON	ATRAZINE	2,4-D	2,4,5-T	SILVEX	ALACHLOI	TRICLOPY	PROPHAM
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#39572	#39632	#39732	#39742	#39762	#46342	#49235	#49236
0.002	.004<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.019<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.047<	.035<	.0350<	.0210E	.004<	.0500<	0.035
0.002	.210<	.050<	.0350<	0.021	.011<	.0320<	0.035
0.002	.110<	.035<	.0350<	.0210<	.002<	.0500<	0.035
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.002E	20	.230<	.0350<	0.021	2.40<	.0500<	0.035
.002E	20	.550<	.0350<	0.021	3.20<	.0500<	0.035
0.002	2.00<	.035<	.0350<	0.021	.069<	.0500<	0.035
0.002	3.50<	.035<	.0350<	0.021	.390<	.0500<	0.035
0.002	3.00<	.035<	.0350<	0.021	.082<	.0500<	0.035
0.018	1.4	.760<	.0350<	0.021	.057<	.0500<	0.035
0.002	.540<	.035<	.0350<	0.021	.022<	.0500<	0.035
0.002	.054<	.035<	.0350<	0.021	.060<	.0500<	0.035
0.002	.183<	.035<	.0350<	0.021	.033<	.0500<	0.035
0.002	.012<	.035<	.0350<	0.021	.006<	.0500<	0.035
0.002	.226<	.035<	.0350<	0.021	.017<	.0500<	0.035
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.002	.058<	.035<	.0350<	0.021	.005<	.0500<	0.035
0.002	.006<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.029<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.050<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.092<	.035<	.0350<	0.021	.007<	.0500<	0.035
0.002	.108<	.035<	.0350<	0.021	.010<	.0500<	0.035
0.002	0.032	-999	-999	-999999<	0.002	-999	-999
0.002	.060<	.035<	.0350<	0.021	.006<	.0500<	0.035
0.002	.088<	.035<	.0350<	0.021	.009<	.0500<	0.035
0.002	.024<	.035<	.0350<	.0210E	.003<	.0500<	0.035
0.002	.064<	.035<	.0350<	0.021	.009<	.0500<	0.035
0.002	.035<	.035<	.0350<	.0210E	.003<	.0500<	0.035
0.003	.045<	.035<	.0350<	.0210E	.003<	.0500<	0.035
0.002	.023<	.035<	.0350<	.0210E	.002<	.0500<	0.035
0.002	.276<	.035<	.0350<	0.021	.058<	.0500<	0.035
0.006	18.6	.300<	.0350<	0.021	2.54<	.0500<	0.035
0.004	4.88	.110<	.0350<	0.021	.615<	.0500<	0.035
0.002	1.11<	.035<	.0350<	0.021	.063<	.0500<	0.035

DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	FILTERED	FILTERED
DIAZINON	ATRAZINE	2,4-D	2,4,5-T	SILVEX	ALACHLOI	TRICLOPY	PROPHAM
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#39572	#39632	#39732	#39742	#39762	#46342	#49235	#49236
0.002	6.5	.220<	.0350<	0.021	.603<	.0500<	0.035
0.002	15.6	.170<	.0350<	0.021	1.27<	.0500<	0.035
0.002	6.43	.110<	.0350<	0.021	.277<	.0500<	0.035
0.002	5.50E	.590<	.0350<	0.021	1.65<	.0500<	0.035
.010E	22.1	.240<	.0350<	0.021	5.46<	.0500<	0.035
0.002	4.60<	.035<	.0350<	0.021	.479<	.0500<	0.035
0.002	1.95<	.035<	.0350<	0.021	.179<	.0500<	0.035
0.002	4.56	.190<	.0350<	0.021	.256<	.0500<	0.035
0.002	1.6	.280<	.0350<	0.021	.212<	.0500<	0.035
0.002	.865<	.035<	.0350<	0.021	.176<	.0500<	0.035
0.002	2.13	.290<	.0350<	0.021	.920<	.0500<	0.035
0.002	0.813	.090<	.0350<	0.021	.490<	.0500<	0.035
0.002	.636<	.035<	.0350<	0.021	.043<	.0500<	0.035
0.002	.046E	5.83<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.206<	.035<	.0350<	0.021	.009<	.0500<	0.035
0.002	.094<	.035<	.0350<	.0210E	.004<	.0500<	0.035
0.002	.079<	.035<	.0350<	.0210E	.004<	.0500<	0.035
0.002	.054<	.035<	.0350<	.0210E	.003<	.0500<	0.035
-999	-999	-999	-999	-999	-999	-999	-999
0.002	.009<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.010<	.035<	.0350<	.0210<	.002<	.0500<	0.035
0.002	.011<	.150<	.0350<	.0210<	.002<	.250<	0.035
0.002	.014<	.150<	.0350<	.0210<	.002<	.250<	0.035
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.031	-999	-999	-999	0.006	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.083	-999	-999	-999	<.01	-999	-999
<.002	0.32	-999	-999	-999	0.006	-999	-999
<.002	9.3	-999	-999	-999	0.36	-999	-999

DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	DISSOLVE	FILTERED	FILTERED
DIAZINON	ATRAZINE	2,4-D	2,4,5-T	SILVEX	ALACHLOI	TRICLOPY	PROPHAM
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#39572	#39632	#39732	#39742	#39762	#46342	#49235	#49236
<.002	5.1	-999	-999	-999	1.1	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.18	-999	-999	-999	0.009	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.1	-999	-999	-999	0.026	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.026	-999	-999	-999	E.002	-999	-999
<.002	3.78	-999	-999	-999	0.201	-999	-999
0.007	12	-999	-999	-999	2.98	-999	-999
<.002	1.42	-999	-999	-999	0.184	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.137	-999	-999	-999	0.022	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.019	-999	-999	-999	E.004	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.041	-999	-999	-999	0.006	-999	-999
<.002	7.63	-999	-999	-999	0.541	-999	-999
<.002	0.72	-999	-999	-999	0.016	-999	-999
<.002	6.38	-999	-999	-999	0.855	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	0.22	-999	-999	-999	0.028	-999	-999

FILTERED	FILTERED	FILTERED		FILTERED	FILTERED	ALDICARB	ALDICARB
CLOPYRA	CHLOROT	CHLORAMBEN		3HYDRXY	ALDICARB	SULFONE	SULFOXI
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49305	#49306	#49307	#49308	#49309	#49312	#49313	#49314
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210E
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
-999	-999	-999	-999	-999	-999	-999	-999
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210E
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280E	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<

FILTERED	FILTERED	FILTERED		FILTERED	FILTERED	ALDICARB	ALDICARB
CLOPYRA	CHLOROT	CHLORAMBEN		3HYDRXY(	ALDICARB	SULFONE	SULFOXI
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49305	#49306	#49307	#49308	#49309	#49312	#49313	#49314
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	0.014	.320<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	0.021
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
-999	-999	-999	-999	-999	-999	-999	-999
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.0500<	.0350<	.0110<	.0140<	.0280<	.0160<	.0160<	.0210<
.230<	.480<	.420<	.0140<	.120<	.550<	.100<	.0210<
.230<	.480<	.420<	.0140<	.120<	.550<	.100<	.0210<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

FILTERED	FILTERED	FILTERED		FILTERED	FILTERED	ALDICARB	ALDICARB
CLOPYRA	CHLOROT	CHLORAMBEN		3HYDRXY	ALDICARB	SULFONE	SULFOXI
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49305	#49306	#49307	#49308	#49309	#49312	#49313	#49314
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

FILTERED	CIS-NONA	T-NONACH	OXYCHLO	ALDRIN	CIS-CHLO	T-CHLORD	CHLORON
ACIFLUOR	BM	BM <	BM	BM <2MM	BM	BM <	BM <2M
(ug/l)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49315	#49316	#49317	#49318	#49319	#49320	#49321	#49322
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999999<	1.00<	1.00<	1.00<	1.00<	1.00<	1.00<	5.00<
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.07	-999	-999	-999	-999	-999	-999	-999
0.04	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.03	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.06	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.08	-999	-999	-999	-999	-999	-999	-999
0.1	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.03	-999	-999	-999	-999	-999	-999	-999
0.05	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999

FILTERED	CIS-NONA	T-NONACH	OXYCHLO	ALDRIN	CIS-CHLO	T-CHLORD	CHLORON
ACIFLUOR	BM	BM <	BM	BM <2MM	BM	BM <	BM <2M
(ug/l)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49315	#49316	#49317	#49318	#49319	#49320	#49321	#49322
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.05	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.64	-999	-999	-999	-999	-999	-999	-999
0.34	-999	-999	-999	-999	-999	-999	-999
0.46	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.25	-999	-999	-999	-999	-999	-999	-999
0.06	-999	-999	-999	-999	-999	-999	-999
0.12	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.05	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
0.035	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

FILTERED	CIS-NONA	T-NONACH	OXYCHLO	ALDRIN	CIS-CHLO	T-CHLORD	CHLORON
ACIFLUOR	BM	BM <	BM	BM <2MM	BM	BM <	BM <2M
(ug/l)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49315	#49316	#49317	#49318	#49319	#49320	#49321	#49322
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

DCPA	O,P'-DDD	P,P'-DDD	O,P'-DDE	P,P'-DDE	O,P'-DDT	P,P'-DDT	DIELDRIN
BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49324	#49325	#49326	#49327	#49328	#49329	#49330	#49331
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
5.00<	1.00<	1.00<	1.00<	1.00<	2.00<	2.00<	1.00<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

DCPA	O,P'-DDD	P,P'-DDD	O,P'-DDE	P,P'-DDE	O,P'-DDT	P,P'-DDT	DIELDRIN
BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49324	#49325	#49326	#49327	#49328	#49329	#49330	#49331
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

DCPA	O,P'-DDD	P,P'-DDD	O,P'-DDE	P,P'-DDE	O,P'-DDT	P,P'-DDT	DIELDRIN
BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49324	#49325	#49326	#49327	#49328	#49329	#49330	#49331
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDOSUL	ENDRIN	ALPHA-BH	BETA-BHC	HEPTA-CH	HEPTACH	BENZENE	ISODRIN
BM	BM <2MM	BM <2M	BM <2MM	BM <	EPOXI	HEXACHL	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49332	#49335	#49338	#49339	#49341	#49342	#49343	#49344
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
1.00<	2.00<	1.00<	1.00<	1.00<	1.00<	1.00<	1.00<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDOSUL	ENDRIN	ALPHA-BH	BETA-BHC	HEPTA-CH	HEPTACH	BENZENE	ISODRIN
BM	BM <2MM	BM <2M	BM <2MM	BM <	EPOXI	HEXACHL	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49332	#49335	#49338	#49339	#49341	#49342	#49343	#49344
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDOSUL	ENDRIN	ALPHA-BH	BETA-BHC	HEPTA-CH	HEPTACH	BENZENE	ISODRIN
BM	BM <2MM	BM <2M	BM <2MM	BM <	EPOXI	HEXACHL	BM <2MM
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49332	#49335	#49338	#49339	#49341	#49342	#49343	#49344
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

							ALDRIN
LINDANE	METHOXY	METHOXY	MIREX	CIS-PERMETHRIN		TOXAPHE	BIOTA
BM <2MM	P,P	O,P	BM <2MM	<	TRANS-PE	BM <2M	WH
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49345	#49346	#49347	#49348	#49349	#49350	#49351	#49353
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999999<	5.00<
-999	-999	-999	-999	-999	-999	-999	-999
1.00<	5.00<	5.00<	1.00<	5.00<	5.00<	200	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

							ALDRIN
LINDANE	METHOXY	METHOXY	MIREX	CIS-PERMETHRIN		TOXAPHE	BIOTA
BM <2MM	P,P	O,P	BM <2MM	<	TRANS-PE	BM <2M	WH
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49345	#49346	#49347	#49348	#49349	#49350	#49351	#49353
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

							ALDRIN
LINDANE	METHOXY	METHOXY	MIREX	CIS-PERMETHRIN		TOXAPHE	BIOTA
BM <2MM	P,P	O,P	BM <2MM	<	TRANS-PE	BM <2M	WH
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49345	#49346	#49347	#49348	#49349	#49350	#49351	#49353
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

PCB							
BIOTA	TOXAPHENE		OXYCHLORDANE		CIS-NONA	MIREX	PPMETHO
WH ORG	WH ORG	PENTCHL	WH	TRANS-N	WH	WH ORG	W
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49354	#49355	#49356	#49357	#49358	#49359	#49360	#49361
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
50.0<	200<	5.00<	5	10	5.50<	5.00<	5.00<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

PCB							
BIOTA	TOXAPHENE		OXYCHLORDANE		CIS-NONA	MIREX	PPMETHO
WH ORG	WH ORG	PENTCHL(	WH	TRANS-NO	WH	WH ORG	W
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49354	#49355	#49356	#49357	#49358	#49359	#49360	#49361
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

PCB							
BIOTA	TOXAPHENE		OXYCHLORDANE		CIS-NONA	MIREX	PPMETHO
WH ORG	WH ORG	PENTCHL	WH	TRANS-N	WH	WH ORG	W
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49354	#49355	#49356	#49357	#49358	#49359	#49360	#49361
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

OPMETHC	LINDANE	DELTA-BH	BETA-BHC	ALPHA-BHC			HEPTACH
W	WH ORG	WH ORG	WH ORG	WH ORG	HEXACHL	HEPTACH	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49362	#49363	#49364	#49365	#49366	#49367	#49368	#49369
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
5.00<	5.00<	5.30<	5.00<	5.00<	5.00<	5.00<	5.00<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

OPMETHO	LINDANE	DELTA-BH	BETA-BHC	ALPHA-BHC			HEPTACH
W	WH ORG	WH ORG	WH ORG	WH ORG	HEXACHL	HEPTACH	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49362	#49363	#49364	#49365	#49366	#49367	#49368	#49369
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

OPMETHC	LINDANE	DELTA-BH	BETA-BHC	ALPHA-BHC			HEPTACH
W	WH ORG	WH ORG	WH ORG	WH ORG	HEXACHL	HEPTACH	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49362	#49363	#49364	#49365	#49366	#49367	#49368	#49369
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDRIN	DIELDRIN	P,P'-DDE	O,P'-DDE	O,P'-DDD	P,P'-DDD	P,P'-DDT	O,P'-DDT
WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49370	#49371	#49372	#49373	#49374	#49375	#49376	#49377
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
5	25	43.0<	5.00<	5	14.0<	5.00<	5.00<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDRIN	DIELDRIN	P,P'-DDE	O,P'-DDE	O,P'-DDD	P,P'-DDD	P,P'-DDT	O,P'-DDT
WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49370	#49371	#49372	#49373	#49374	#49375	#49376	#49377
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

ENDRIN	DIELDRIN	P,P'-DDE	O,P'-DDE	O,P'-DDD	P,P'-DDD	P,P'-DDT	O,P'-DDT
WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG	WH ORG
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
#49370	#49371	#49372	#49373	#49374	#49375	#49376	#49377
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999

							FILTERED
DCPA	T-CHLORD	C-CHLORDANE			FILTERED	FILTERED	PHORATE
WH ORG	WH ORG	WH ORG	DIBUTYLP	METRIBUZ	TRIFLURA	ETHALFLU	0.7
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49378	#49379	#49380	#49381	#82630	#82661	#82663	#82664
-999	-999	-999	-999	.004<	.0060<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0060<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	-999	-999	-999	-999
5.00<	5	5	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	62E	-999	-999	-999	-999
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.190<	.0100<	.0040<	.0020<
-999	-999	-999	-999	.045<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.005<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.010<	.0022<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.008<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.006<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.010<	.0039<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<

							FILTERED
DCPA	T-CHLORD	C-CHLORDANE			FILTERED	FILTERED	PHORATE
WH ORG	WH ORG	WH ORG	DIBUTYLP	METRIBUZ	TRIFLURA	ETHALFLU	0.7
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49378	#49379	#49380	#49381	#82630	#82661	#82663	#82664
-999	-999	-999	-999	.009<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0072<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.026<	.0066<	.0040<	.0020<
-999	-999	-999	-999	.183<	.0160<	.0040<	.0020<
-999	-999	-999	-999	.036<	.0046<	.0040<	.0020<
-999	-999	-999	-999	.012<	.0040<	.0040<	.0020<
-999	-999	-999	-999	.024<	.0081<	.0040<	.0020<
-999	-999	-999	-999	.043<	.0088<	.0040<	.0020<
-999	-999	-999	-999	.011<	.0315<	.0040<	.0020<
-999	-999	-999	-999	.046<	.0082<	.0040<	.0020<
-999	-999	-999	-999	.029<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.089<	.0044<	.0040<	.0020<
-999	-999	-999	-999	.020<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	.004<	.0020<	.0040<	.0020<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004		<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	<.002
-999	-999	-999	-999	<.004	-999	<.004	<.002
-999	-999	-999	-999	<.004	-999	<.004	<.002

							FILTERED
DCPA	T-CHLORD	C-CHLORDANE			FILTERED	FILTERED	PHORATE
WH ORG	WH ORG	WH ORG	DIBUTYLP	METRIBUZ	TRIFLURA	ETHALFLU	0.7
(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#49378	#49379	#49380	#49381	#82630	#82661	#82663	#82664
-999	-999	-999	-999	0.72	-999	<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	0.017	-999	<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	<.002
-999	-999	-999	-999	0.005	-999	<.004	<.002
-999	-999	-999	-999	1.1	-999	<.004	0.013
-999	-999	-999	-999	0.054	-999	<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	<.002
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.004	-999	<.004	-999
-999	-999	-999	-999	0.034	-999	<.004	-999
-999	-999	-999	-999	<.004	-999	<.004	-999
-999	-999	-999	-999	0.713	-999	<.004	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	<.01	-999	<.004	-999

FILTERED	FILTERED		FILTERED	FILTERED		FILTERED	FILTERED
TERBACIL	LINURON	METHYL	EPTC	PEBULATE	FILTERED	MOLINATE	ETHOPRO
0.7	0.7	PARATHIC	0.7 REC	0.7	TEBUTHIU	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82665	#82666	#82667	#82668	#82669	#82670	#82671	#82672
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0280<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	0.004	.0130<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.200<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0100<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	1.40<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0080<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	0.002	.0988<	.0020<	.0040<	.0100<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0116<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0078<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0042<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0173<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100E	.0034<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0233<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0175<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0151<	.0030<
.0070<	.0020<	.0200<	.0020<	.0040<	0.01	.0053<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0137<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0124<	.0030<

FILTERED	FILTERED		FILTERED	FILTERED		FILTERED	FILTERED
TERBACIL	LINURON	METHYL	EPTC	PEBULAT	FILTERED	MOLINAT	ETHOPRO
0.7	0.7	PARATHIO	0.7 REC	0.7	TEBUTHIU	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82665	#82666	#82667	#82668	#82669	#82670	#82671	#82672
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0105<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0138<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0710<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	0.0096	1.84<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	0.0168	.0352<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.124<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	0.0093	.513<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	0.0124	.308<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040E	0.0157	.102<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0249<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.171<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0271<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100<	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.739<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.103<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0363<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0156<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
.0070<	.0020<	.0060<	.0020<	.0040<	.0100E	.0040<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100E	.0034<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	.0100E	.0035<	.0030<
.0070<	.0020<	.0060<	.0020<	.0040<	0.01	.0041<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	<.004	<.003
<.007	<.002	<.006	<.002	<.004	<.01	<.004	<.003
<.007	<.002	<.006	<.002	<.004	<.01	<.004	<.003

FILTERED	FILTERED		FILTERED	FILTERED		FILTERED	FILTERED
TERBACIL	LINURON	METHYL	EPTC	PEBULATE	FILTERED	MOLINATE	ETHOPRO
0.7	0.7	PARATHIC	0.7 REC	0.7	TEBUTHIU	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82665	#82666	#82667	#82668	#82669	#82670	#82671	#82672
<.007	<.002	<.006	<.002	<.004	<.01	0.53	<.003
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	0.153	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	0.008	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	0.007	<.003
<.007	<.002	<.006	<.002	<.004	0.026	0.007	<.003
<.007	<.002	<.006	<.002	<.004	<.01	1.43	<.003
<.007	<.002	<.006	<.002	<.004	<.01	0.603	<.003
-999	-999	-999	-999	-999	-999	-999	-999
<.007	<.002	<.006	<.002	<.004	<.01	0.345	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	<.002	<.006	<.002	<.004	<.001	E.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	<.002	<.006	<.002	<.004	<.001	<.004	<.003
-999	<.002	<.006	<.002	<.004	0.015	E.004	<.003
-999	<.002	<.006	<.002	<.004	<.001	0.273	<.003
-999	<.002	<.006	<.002	<.004	<.001	3.24	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	<.002	<.006	<.002	<.004	<.001	0.196	<.003

		FILTERED	FILTERED		FILTERED	FILTERED	FILTERED
FILTERED	FILTERED	TERBUFO	PRONAMI	FILTERED	TRIALLAT	PROPANIL	CARBARY
BENFLUR	CARBOFU	0.7	0.7	DISULFOT	0.7	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82673	#82674	#82675	#82676	#82677	#82678	#82679	#82680
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010E	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	.260E	0.008
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040E	.0206<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040E	.0066<

		FILTERED	FILTERED		FILTERED	FILTERED	FILTERED
FILTERED	FILTERED	TERBUFO	PRONAMI	FILTERED	TRIALLAT	PROPANIL	CARBARY
BENFLUR	CARBOFU	0.7	0.7	DISULFOT	0.7	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82673	#82674	#82675	#82676	#82677	#82678	#82679	#82680
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	.0188<	0.003
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	2.05<	0.003
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040E	.0217E
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	.0182<	0.003
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	.0992<	0.003
.0020<	.0030<	.0130<	.0030<	.0170<	0.001	.238<	0.003
.0020E	.280<	.0130<	.0030<	.0170<	0.001	.561<	0.003
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020E	.0197<	.0130<	.0030<	.0170<	.0010<	.0040E	.0290<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
.0020<	.0030<	.0130<	.0030<	.0170<	.0010<	.0040<	.0030<
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	E.013	<.001	<.004	<.003
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003

		FILTERED	FILTERED		FILTERED	FILTERED	FILTERED
FILTERED	FILTERED	TERBUFO	PRONAMII	FILTERED	TRIALLATI	PROPANIL	CARBARY
BENFLUR/	CARBOFU	0.7	0.7	DISULFOT	0.7	0.7	0.7
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
#82673	#82674	#82675	#82676	#82677	#82678	#82679	#82680
<.002	E.15	<.013	<.003	<.017	<.001	0.12	<.003
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
<.002	E.232	<.013	<.003	<.017	<.001	<.004	<.003
<.002	E.074	<.013	<.003	<.017	<.001	0.33	<.003
<.002	<.003	<.013	<.003	<.017	<.001	0.034	<.003
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.003	<.013	<.003	<.017	<.001	<.004	<.003
<.002	E.085	<.013	<.003	<.017	<.001	<.004	<.003
<.002	<.003	<.013	<.003	<.017	<.001	0.02	<.003
<.002	E1.97	<.013	<.003	<.017	<.001	0.032	E.009
-999	-999	-999	-999	-999	-999	-999	-999
<.002	<.04	<.013	<.003	<.017	<.001	<.004	<.003

	FILTERED						
FILTERED	DCPA	FILTERED	FILTERED	FILTERED	METHYL	FILTERED	
THIOBENC	0.7 REC	PENDIMET	NAPROPA	PROPARG	AZINPHOS	PERMETHRIN	
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	
#82681	#82682	#82683	#82684	#82685	#82686	#82687	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0200<	0.002	.150<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020E	.0008<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	

	FILTERED						
FILTERED	DCPA	FILTERED	FILTERED	FILTERED	METHYL	FILTERED	
THIOBENC	0.7 REC	PENDIMET	NAPROPA	PROPARG	AZINPHOS	PERMETHRIN	
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	
#82681	#82682	#82683	#82684	#82685	#82686	#82687	
.0020<	.0020E	.0236<	.0030<	.0130<	.0010<	0.005	
.0020<	0.002	.0468<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0611<	0.002	.0716<	.0030<	.0130<	.0010<	0.005	
.0488E	0.002	.330<	.0030<	.0130<	.0010<	0.005	
.0034<	0.002	.0353<	.0030<	.0130<	.0010<	0.005	
.0162<	0.002	.0215<	.0030<	.0130<	.0010<	0.005	
.0411<	0.002	.0619<	.0030<	.0130<	.0010<	0.005	
.0296E	0.0008	.0866<	.0030<	.0130<	.0010<	0.005	
.0050<	0.002	0.0271	.0190<	.0130<	.0010<	0.005	
.0020<	0.002	.0906<	.0030<	.0130<	.0010<	0.005	
0.002	.0273<	.0040<	0.003	.0606<	.0010<	0.005	
.0020<	.0020<	.0200<	.0030<	.0130<	.0010<	0.005	
.0020E	.0032<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020E	.0013<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0100<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
-999	-999	-999	-999	-999	-999	-999	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
.0020<	.0020<	.0040<	.0030<	.0130<	.0010<	0.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	

	FILTERED						
FILTERED	DCPA	FILTERED	FILTERED	FILTERED	METHYL	FILTERED	
THIOBENC	0.7 REC	PENDIMET	NAPROPA	PROPARG	AZINPHOS	PERMETHRIN	
(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	
#82681	#82682	#82683	#82684	#82685	#82686	#82687	
0.099	<.002	0.15	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
<.002	E.002	<.004	<.003	<.013	<.001	E.002	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
<.002	<.002	E.032	<.003	<.013	<.001	<.005	
0.276	<.002	0.232	<.003	<.013	<.001	<.005	
0.018	<.002	0.019	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
0.011	<.002	<.004	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
-999	-999	-999	-999	-999	-999	-999	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
<.002	<.002	0.083	<.003	<.013	<.001	<.005	
<.002	<.002	<.004	<.003	<.013	<.001	<.005	
1.06	<.002	0.169	<.003	<.013	<.001	<.005	
-999	-999	-999	-999	-999	-999	-999	
<.002	0.015	<.02	<.003	<.013	<.001	<.005	

Table B5. Selected water quality data for the Mississippi River at Thebes, IL.

DATE	TIME	TUR-BID-ITY (NTU) (OOO76)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (OO530)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (OO630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (OO610)	AMMONIA UN-IONIZED (MG/L AS N) (OO619)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (OO625)	PHOS-PHORUS TOTAL (MG/L AS P) (OO665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (OO666)	IRON, TOTAL RECOV-ERABLE (uG/L) AS FE) (O1O45)	NITRO-GEN TOTAL (MG/L AS N) (OO6OO)	NITRO-GEN DIS-SOLVED (MG/L AS N) (OO6O2)	NITRO-GEN ORGANIC TOTAL (MG/L AS N) (OO6O5)	NITRO-GEN ORGANIC DIS-SOLVED (MG/L AS N) (OO6O7)
11/02/1994	700	9.7	83	1.66	0.06	<.001	0.75	0.18	0.11	1900				
01/12/1995	900	4.7	47	1.87	0.19	0.003	0.94	0.15	0.06	1200				
03/21/1995	900	13	138		0.15	0.003	1.5		0.05	3100				
05/23/1995	1030	49	250	1.8	0.09	0.001	0.95	0.34	0.08	11000				
07/27/1995	900	27	306	3.5	<.01	<.001	0.85	0.3	0.11	5900				
09/06/1995	900	4.2	172	4.6	0.11	0.007	0.95	0.27	0.14	3400				
11/06/1995	1530	24		1.1			0.6	0.16	0.1		1.7	1.6	0.56	0.46
11/27/1995	1400	22		2			0.7	0.19	0.09		2.7	2.5	0.62	0.42
12/12/1995	947	4.6		1.9			0.7	0.05	0.07		2.6	2.3	0.7	
01/22/1996	1525	32		2.1			0.9	0.24	0.09		3	2.6	0.7	0.3
02/20/1996	1540	36		2.2			1.1	0.27	0.13		3.3	3	0.78	0.48
03/12/1996	1500	74		2.1			1.1	0.28	0.13		3.2	2.8	0.87	0.47
03/26/1996	1330	25		1.6			0.8	0.16	0.11		2.4	2	0.77	0.37
04/08/1996	1540	36		1.7			0.8	0.18	0.07		2.5	2.2	0.8	
04/22/1996	1455	27		1.6			0.9	0.23	0.08		2.5	2	0.83	0.33
05/06/1996	1545	83		1.4			1.2	0.38	0.09		2.6	1.9	1.2	0.46
05/22/1996	1610	82		2.5			1.6	0.46	0.08		4.1	3	1.6	
06/17/1996	1520	110		3.5			1.6	0.56	0.13		5.1	3.9	1.6	0.37
07/17/1996	1610	24		3.1			0.6	0.16	0.11		3.7	3.5	0.56	0.36
08/12/1996	1450	31		2			0.7	0.19	0.11		2.7	2.3	0.66	0.26
09/09/1996	1500	39		1.2			0.5	0.16	0.11		1.7	1.6	0.47	0.37
10/21/1996	1530	20		0.78			0.6	0.15	0.06		1.4	1.1	0.52	0.22
12/16/1996	1530	24		2.1			0.7	0.18	0.07		2.8	2.5	0.59	0.29
01/27/1997	1425	39		2.2			1	0.23	0.08		3.2	2.9	0.74	0.44
02/24/1997	1515	380		2			2.3	1.4	0.09		4.3	2.6	2.1	0.41
03/12/1997	1430	72		2.4			1.4	0.38	0.08		3.8	3	1.1	0.35
03/26/1997	1700	55		2.55			1.2	0.404	0.126		3.7	3.1	1	0.45
04/15/1997	1315	0.8		2.36			1.6	0.714	0.069		4	2.8	1.6	0.38
04/28/1997	1525	78		2.1			1.2	0.39	0.07		3.3	2.6	1.1	0.43

			RESIDUE				NITRO-							NITRO-
			TOTAL	NITRO-	NITRO-		GEN, AM-		PHOS-	IRON,		NITRO-	NITRO-	GEN
			AT 105	GEN,	GEN,	AMMONIA	MONIA +	PHOS-	PHORUS	TOTAL	NITRO-	GEN	GEN	ORGANIC
		TUR-	DEG. C,	NO2+NO3	AMMONIA	UN-	ORGANIC	PHORUS	DIS-	RECOV-	GEN	DIS-	ORGANIC	DIS-
DATE	TIME	BID-	SUS-	TOTAL	TOTAL	IONIZED	TOTAL	TOTAL	SOLVED	ERABLE	TOTAL	SOLVED	TOTAL	SOLVED
		ITY	PENDED	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(uG/L)	(MG/L	(MG/L	(MG/L	(MG/L
		(NTU)	(MG/L)	AS N)	AS N)	AS N)	AS N)	AS P)	AS P)	AS FE)	AS N)	AS N)	AS N)	AS N)
		(OOO76)	(OO530)	(OO630)	(OO610)	(OO619)	(OO625)	(OO665)	(OO666)	(O1O45)	(OO6OO)	(OO6O2)	(OO6O5)	(OO6O7)
05/22/1997	1600	0.3		2.42			0.85	0.238	0.07		3.3	2.8	0.79	0.37
06/11/1997	1535	30		2.55			0.84	0.186	0.071		3.4	2.9	0.8	0.32
07/09/1997	1600	60		3.03			0.38	0.174	0.165		3.4	3.4	0.38	
07/21/1997	1520	42		1.96			0.77	0.259	0.105		2.7		0.77	
08/13/1997	1540			1.31			0.73	0.19	0.093		2	1.7	0.73	
08/20/1997	1450	19		0.91			0.79	0.222	0.093		1.7	1.4	0.76	0.43
09/17/1997	1530	27		<.05			0.52	0.179	0.086		0.52		0.52	
10/20/1997	1600	25		0.905			0.55	0.213	0.096		1.5	1.1	0.52	0.2
11/24/1997	1545	15		1.45			0.37	0.063	0.07		1.8	1.8	0.29	0.3
01/07/1998	1325	38		1.71			0.78	0.229	0.092		2.5	2.1	0.74	0.4
02/02/1998	1520	12		1.38			0.55	0.068	0.057		1.9	1.8	0.43	0.35
03/04/1998	1325	72		2.93			0.21	0.692	0.1		3.1	3.3	0.14	0.34
03/24/1998	1255	140		2.14			0.73	0.161	0.07		2.9	2.6	0.57	0.32
04/16/1998	1350	100		3.64			1.2	0.415	0.089		4.9	4.1	1.2	0.42
05/07/1998	1055	52		3.59			1	0.329	0.082		4.6	4	1	0.4
05/21/1998	930	26		4.18			0.91	0.255	0.096		5.1	4.6	0.88	0.4
06/10/1998	1410	96		3.78			0.62	0.205	0.135		4.4	4.3		
06/22/1998	1525	300		4.09			1.7	0.646	0.12		5.8	4.5	1.6	0.41
07/22/1998	1610	65		3.22			1.1	0.435	0.143		4.3	3.7		
08/11/1998	1040	54		1.97			0.77	0.263	0.116		2.7	2.3	0.69	0.28
08/26/1998	1335	24		1.86			0.33	0.229	0.133		2.2	2.4		
09/09/1998	1330	27		1.16			0.69	0.255	0.139		1.8	1.5		

			RESIDUE				NITRO-							NITRO-
			TOTAL	NITRO-	NITRO-		GEN, AM-		PHOS-	IRON,		NITRO-	NITRO-	GEN
			AT 105	GEN,	GEN,	AMMONIA	MONIA +	PHOS-	PHORUS	TOTAL	NITRO-	GEN	GEN	ORGANIC
		TUR-	DEG. C,	NO2+NO3	AMMONIA	UN-	ORGANIC	PHORUS	DIS-	RECOV-	GEN	DIS-	ORGANIC	DIS-
DATE	TIME	BID-	SUS-	TOTAL	TOTAL	IONIZED	TOTAL	TOTAL	SOLVED	ERABLE	TOTAL	SOLVED	TOTAL	SOLVED
		ITY	PENDED	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(uG/L)	(MG/L	(MG/L	(MG/L	(MG/L
		(NTU)	(MG/L)	AS N)	AS N)	AS N)	AS N)	AS P)	AS P)	AS FE)	AS N)	AS N)	AS N)	AS N)
		(OOO76)	(OO530)	(OO630)	(OO610)	(OO619)	(OO625)	(OO665)	(OO666)	(O1O45)	(OO6OO)	(OO6O2)	(OO6O5)	(OO6O7)
			RESIDUE				NITRO-							NITRO-
			TOTAL	NITRO-	NITRO-		GEN, AM-		PHOS-	IRON,		NITRO-	NITRO-	GEN
			AT 105	GEN,	GEN,	AMMONIA	MONIA +	PHOS-	PHORUS	TOTAL	NITRO-	GEN	GEN	ORGANIC
		TUR-	DEG. C,	NO2+NO3	AMMONIA	UN-	ORGANIC	PHORUS	DIS-	RECOV-	GEN	DIS-	ORGANIC	DIS-
DATE	TIME	BID-	SUS-	TOTAL	TOTAL	IONIZED	TOTAL	TOTAL	SOLVED	ERABLE	TOTAL	SOLVED	TOTAL	SOLVED
		ITY	PENDED	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(uG/L)	(MG/L	(MG/L	(MG/L	(MG/L
		(NTU)	(MG/L)	AS N)	AS N)	AS N)	AS N)	AS P)	AS P)	AS FE)	AS N)	AS N)	AS N)	AS N)
		(OOO76)	(OO530)	(OO630)	(OO610)	(OO619)	(OO625)	(OO665)	(OO666)	(O1O45)	(OO6OO)	(OO6O2)	(OO6O5)	(OO6O7)
Mean		53.006	166	2.2470408	0.12	0.0035	0.9045098	0.29328	0.096392157	4416.666667	3.040444444	2.653488372	0.836098	0.369412
Std Dev.		67.014757	98.514973	0.9141685	0.0509902	0.00251661	0.3951977	0.217070292	0.026225239	3605.227686	1.130233193	0.89505223	0.401689	0.070494
Std. Err		9.4773179	40.21857	0.1305955	0.02280351	0.00125831	0.0553388	0.030698375	0.003672268	1471.828039	0.168485217	0.136494185	0.062733	0.01209
95% CI		19.045747	103.38634	0.2625849	0.06331121	0.0040036	0.1111533	0.061691874	0.007376108	3783.499016	0.339566161	0.275461717	0.126791	0.024597
99% CI		25.400557	162.16838	0.3503087	0.10496215	0.00733687	0.1481962	0.082276004	0.009834271	5934.670796	0.453641493	0.368296749	0.169672	0.033046
size		51	6	51	6	6	51	51	51	6	51	51	49	49
Min		0.3	47	0.78	0.06	0.001	0.21	0.05	0.05	1200	0.52	1.1	0.14	0.2
Max		380	306	4.6	0.19	0.007	2.3	1.4	0.165	11000	5.8	4.6	2.1	0.48
Missing		0	0	0	0	0	0	0	0	0	0	0	0	0
Other		1	0	2	1	2	0	1	0	0	6	8	8	15

Table B5. Selected v													
		NITRO-	NITRO-	NITRO-		NITRO-	NITRO-	PHOS-	PHOS-		CARBON,	SOLIDS,	
		GEN,	GEN,	GEN,	NITRO-	GEN, AM-	GEN,	PHATE,	PHORUS	CARBON,	ORGANIC	RESIDUE	
		AMMONIA	NITRITE	NITRATE	GEN,	MONIA +	NO2+NO3	ORTHO,	ORTHO,	ORGANIC	SUS-	AT 180	SEDI-
		DIS-	DIS-	DIS-	NITRATE	ORGANIC	DIS-	DIS-	DIS-	DIS-	PENDED	DEG. C	MENT
DATE	TIME	SOLVED	SOLVED	SOLVED	TOTAL	DIS.	SOLVED	SOLVED	SOLVED	SOLVED	TOTAL	SDIS-	SUS-
		(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	SOLVED	PENDED
		AS N)	AS N)	AS N)	AS N)	AS N)	AS N)	AS PO4)	AS P)	AS C)	AS C)	(MG/L)	(MG/L)
		(OO6O8)	(OO613)	(OO618)	(OO62O)	(OO623)	(OO631)	(OO66O)	(OO666)	(OO681)	(OO681)	(7O3OO)	(8O154)
11/02/1994	700												
01/12/1995	900												
03/21/1995	900												
05/23/1995	1030												
07/27/1995	900												
09/06/1995	900												
11/06/1995	1530	0.04	0.01	1.09	1.09	0.5	1.1	0.25	0.08	6	0.7	348	133
11/27/1995	1400	0.08	0.01	1.99	1.99	0.5	2	0.28	0.09	5.2	0.6	393	124
12/12/1995	947	<.015	0.01	1.89	1.89	0.4	1.9	0.15	0.05	4.8	0.6	428	116
01/22/1996	1525	0.2	0.02	2.08	2.08	0.5	2.1	0.28	0.091	4.9	1.4	417	132
02/20/1996	1540	0.32	0.04	2.16	2.16	0.8	2.2	0.37	0.12	5.3	2.1	366	211
03/12/1996	1500	0.23	0.03	2.07	2.07	0.7	2.1	0.25	0.08	4.9	2.6	349	222
03/26/1996	1330	0.03	0.02	1.58	1.58	0.4	1.6	0.29	0.093	4.6	3	350	171
04/08/1996	1540	<.015	0.02	1.68	1.68	0.5	1.7	0.21	0.068	4.5	2.6	280	150
04/22/1996	1455	0.07	0.02	1.58	1.58	0.4	1.6	0.29	0.094	5	1.9	305	177
05/06/1996	1545	0.04	0.03	1.37	1.37	0.5	1.4	0.22	0.072	5.7	4.9	224	536
05/22/1996	1610	<.015	0.06	2.44	2.44	0.5	2.5	0.27	0.087	5.1	4.1	235	543
06/17/1996	1520	0.03	0.03	3.47	3.47	0.4	3.5	0.31	0.1	4.5	1.9	268	510
07/17/1996	1610	0.04	0.02	3.08	3.08	0.4	3.1	0.4	0.13	4.3	0.8	357	238
08/12/1996	1450	0.04	0.03	1.97	1.97	0.3	2	0.31	0.1	3.9	1.9	365	342
09/09/1996	1500	0.03	0.05	1.15	1.15	0.4	1.2	0.34	0.11	3.7	1	386	183
10/21/1996	1530	0.08	0.03	0.75		0.3		0.23	0.074	4.7	1.9	408	141
12/16/1996	1530	0.11	0.02	2.08		0.4		0.26	0.086	4.4	1.5	339	152
01/27/1997	1425	0.26	0.03	2.17		0.7		0.27	0.088	4.8	1.2	347	206
02/24/1997	1515	0.19	0.02	1.98		0.6		0.22	0.073	5	10	308	1760
03/12/1997	1430	0.25	0.03	2.37		0.6		0.37	0.12	5	2	248	397
03/26/1997	1700	0.14	0.04	2.51		0.6		0.23	0.076	5.2	0.3	286	211
04/15/1997	1315	0.04	0.03	2.33		0.4		0.27	0.089	5.3	3.5	318	960
04/28/1997	1525	0.03	0.02	2.07		0.5		0.19	0.062	4.8	2.6	275	

		NITRO-	NITRO-	NITRO-		NITRO-	NITRO-	PHOS-	PHOS-		CARBON,	SOLIDS,	
		GEN,	GEN,	GEN,	NITRO-	GEN, AM-	GEN,	PHATE,	PHORUS	CARBON,	ORGANIC	RESIDUE	
		AMMONIA	NITRITE	NITRATE	GEN,	MONIA +	NO2+NO3	ORTHO,	ORTHO,	ORGANIC	SUS-	AT 180	SEDI-
		DIS-	DIS-	DIS-	NITRATE	ORGANIC	DIS-	DIS-	DIS-	DIS-	PENDED	DEG. C	MENT
DATE	TIME	SOLVED	SOLVED	SOLVED	TOTAL	DIS.	SOLVED	SOLVED	SOLVED	SOLVED	TOTAL	SDIS-	SUS-
		(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	SOLVED	PENDED
		AS N)	AS N)	AS N)	AS N)	AS N)	AS N)	AS PO4)	AS P)	AS C)	AS C)	(MG/L)	(MG/L)
		(OO6O8)	(OO613)	(OO618)	(OO62O)	(OO623)	(OO631)	(OO66O)	(OO666)	(OO681)	(OO681)	(7O3OO)	(8O154)
05/22/1997	1600	0.06	0.02	2.4		0.4		0.25	0.081	4.9	0.7	354	254
06/11/1997	1535	0.03	0.03	2.52		0.4		0.25	0.083	6.1	0.6	360	165
07/09/1997	1600	<.01	0.02	3.01		0.4		0.43	0.14	4.1	1.1	384	285
07/21/1997	1520	<.01	0.02	1.94		<.02		0.39	0.128	4.2	1	380	186
08/13/1997	1540	<.01	0.02	1.29		0.4		0.27	0.089	4.2	0.9	385	126
08/20/1997	1450	0.03	0.02	0.9		0.5		0.27	0.089	4.4	0.6	405	127
09/17/1997	1530	<.01	<.01			0.3		0.34	0.11	3.8	1.1	406	138
10/20/1997	1600	0.031	0.016	0.889		0.23		0.29	0.095	4.2	0.9	394	157
11/24/1997	1545	0.086	0.021	1.42		0.38		0.31	0.1	4	0.2	417	160
01/07/1998	1325	0.041	<.01			0.44		0.27	0.089	3.9	1.8	341	287
02/02/1998	1520	0.12	0.02	1.36		0.47		0.24	0.078	4	0.9	406	125
03/04/1998	1325	0.07	0.015	2.92		0.41		0.29	0.096	4.4	4.1	308	330
03/24/1998	1255	0.153	0.015	2.12		0.47		0.2	0.066	5.2	3.5	224	739
04/16/1998	1350	0.071	0.044	3.59		0.49		0.25	0.08	4.6	5.4	260	604
05/07/1998	1055	0.039	0.047	3.54		0.44		0.25	0.083	4.6	3.4	304	348
05/21/1998	930	0.029	0.058	4.12		0.43		0.27	0.088	4.1	1.4	347	198
06/10/1998	1410	<.02	0.045	3.74		0.47		0.36	0.119	4.3	5.7	307	472
06/22/1998	1525	0.043	0.011	4.08		0.45		0.41	0.134	3.8	>10	268	1510
07/22/1998	1610	<.02	0.016	3.21		0.43		0.5	0.163	6.6	3	314	329
08/11/1998	1040	0.083	0.02	1.95		0.36		0.38	0.123	4.2	2.6	291	244
08/26/1998	1335	<.02	0.014	1.85		0.5		0.39	0.128	4.5	1.3	354	144
09/09/1998	1330	<.02	0.014	1.14		0.37		0.44	0.144	4.1	1.1	357	160

		NITRO-	NITRO-	NITRO-		NITRO-	NITRO-	PHOS-	PHOS-		CARBON,	SOLIDS,	
		GEN,	GEN,	GEN,	NITRO-	GEN, AM-	GEN,	PHATE,	PHORUS	CARBON,	ORGANIC	RESIDUE	
		AMMONIA	NITRITE	NITRATE	GEN,	MONIA +	NO2+NO3	ORTHO,	ORTHO,	ORGANIC	SUS-	AT 180	SEDI-
		DIS-	DIS-	DIS-	NITRATE	ORGANIC	DIS-	DIS-	DIS-	DIS-	PENDED	DEG. C	MENT
DATE	TIME	SOLVED	SOLVED	SOLVED	TOTAL	DIS.	SOLVED	SOLVED	SOLVED	SOLVED	TOTAL	SDIS-	SUS-
		(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	SOLVED	PENDED
		AS N)	AS N)	AS N)	AS N)	AS N)	AS N)	AS PO4)	AS P)	AS C)	AS C)	(MG/L)	(MG/L)
		(OO6O8)	(OO613)	(OO618)	(OO62O)	(OO623)	(OO631)	(OO66O)	(OO666)	(OO681)	(OO681)	(7O3OO)	(8O154)
		NITRO-	NITRO-	NITRO-		NITRO-	NITRO-	PHOS-	PHOS-		CARBON,	SOLIDS,	
		GEN,	GEN,	GEN,	NITRO-	GEN, AM-	GEN,	PHATE,	PHORUS	CARBON,	ORGANIC	RESIDUE	
		AMMONIA	NITRITE	NITRATE	GEN,	MONIA +	NO2+NO3	ORTHO,	ORTHO,	ORGANIC	SUS-	AT 180	SEDI-
		DIS-	DIS-	DIS-	NITRATE	ORGANIC	DIS-	DIS-	DIS-	DIS-	PENDED	DEG. C	MENT
DATE	TIME	SOLVED	SOLVED	SOLVED	TOTAL	DIS.	SOLVED	SOLVED	SOLVED	SOLVED	TOTAL	SDIS-	SUS-
		(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	(MG/L	SOLVED	PENDED
		AS N)	AS N)	AS N)	AS N)	AS N)	AS N)	AS PO4)	AS P)	AS C)	AS C)	(MG/L)	(MG/L)
		(OO6O8)	(OO613)	(OO618)	(OO62O)	(OO623)	(OO631)	(OO66O)	(OO666)	(OO681)	(OO681)	(7O3OO)	(8O154)
Mean		0.092235	0.025721	2.182535	1.973333	0.455455	2	0.295778	0.096422	4.662222	2.145455	337.0222	334.1591
Std Dev.		0.079303	0.012633	0.867893	0.652628	0.108573	0.654654	0.073901	0.024026	0.638638	1.833088	55.65947	340.5798
Std. Err		0.0136	0.001926	0.132352	0.168508	0.016368	0.169031	0.011016	0.003582	0.095203	0.276348	8.297224	51.34434
95% CI		0.027671	0.003888	0.267103	0.361421	0.03301	0.362543	0.022203	0.007218	0.191872	0.55732	16.72228	103.5477
99% CI		0.037176	0.005198	0.357121	0.501663	0.044117	0.50322	0.029662	0.009643	0.25633	0.74484	22.34003	138.3881
size		49	51	51	21	51	21	51	51	51	51	51	51
Min		0.029	0.01	0.75	1.09	0.23	1.1	0.15	0.05	3.7	0.2	224	116
Max		0.32	0.06	4.12	3.47	0.8	3.5	0.5	0.163	6.6	10	428	1760
Missing		0	0	0	0	0	0	0	0	0	0	0	0
Other		15	8	8	6	7	6	6	6	6	7	6	7

Table B6. Well-water data from the NRCS of Missouri.																
Well #	date	Na (mg/L)	Ca	Mg	Cl	Cond	TDS	SAR	SO4	Nitrate-N	pH	CO3	HCO3	P	K	B
Miss #1	######	6	92	45	2	0.42	421	0.1	45	0.7	6.9	0	400	0.29	2	0.06
Miss #2	######	10	81	27	2	0.41	417	0.2	<3	<.04	7	0	449	0.49	2	0.1
Miss # 3	######	6	73	24	2	0.36	351	0.2	29	0.06	7.3	0	337	0.31	1	0.05
NM #1	Sep-97	14	57	15	2	0.3	268	0.4	62	0.23	6.9	0	190	0.39	3	0.04
NM #2	Sep-97	189	143	43	326	1.45	901	3.5	60	0.04	6.3	0	107	0.65	5	0.04
NM #3	Sep-97	6	40	6	2	0.22	178	0.2	8	0.04	6.9	0	151	0.27	1	0.03
Miss #1	Jul-98	5	110	30	26	0.76	613	0.1	12	0.1	6.6	0	549	0.2	8	0.04
Miss #2	Jul-98	8	44	13	12	0.51	339	0.3	49	19.6	6.7	0	166	0.13	40	0.02
Miss #3	Jul-98	3	42	13	12	0.34	255	0.1	24	17.4	6.5	0	176	0.21	5	<.01
NM #1	Aug-98	9	16	11	7	0.13	89	0.4	5	1.43	5.5	0	43	0.45	2	0.01
NM #2	Aug-98	5	27	7	42	0.36	205	0.2	12	1.44	6	0	83	0.38	2	0.05
NM #3	Aug-98	5	7	3	10	0.33	170	0.4	11	27.4/<.04	5.9	0	56	3.01	7	0.21
Miss # 1	Aug-99	12	42	8	14	0.31	228	0.4	28	0.21	7.8	0	151	0.64	1	<.01
Miss #2	Aug-99	7	38	11	2	0.28	208	0.3	21	2.06	7.6	0	151	0.91	3	0.01
Miss #3	Aug-99	10	45	9	18	0.33	235	0.4	39	2.16	7.9	0	132	1.71	1	<.01
NM #1	Aug-99	11	25	9	10	0.24	165	0.5	23	2.45	6.9	0	95	0.38	1	<.01
NM #2	Aug-99	12	11	3	4	0.13	93	0.8	20	0.25	6.4	0	51	0.24	1	<.01
NM #3	Aug-99	11	48	12	8	0.39	214	0.4	30	5.8	6.6	0	61	1.15	1	<.01

nd = nondetectable

* High values were retested

Table B6. Well-wa												
Well #	date	Cyanazine	Alachlor	Trifluralin	Bentazone	Acifluorfen	Atrazine	Metochlor	Molinate	Pendimethalin	Fluometuron	Aldicarb
Miss #1	######	nd	nd	nd	nd	nd	nd	nd				
Miss #2	######	nd	nd	nd	nd	nd	nd	nd				
Miss # 3	######	nd	nd	nd	nd	nd	nd	nd				
NM #1	Sep-97	nd	nd	nd	nd	nd	nd	nd				
NM #2	Sep-97	nd	nd	nd	nd	nd	nd	nd				
NM #3	Sep-97	nd	nd	nd	nd	nd	nd	nd				
Miss #1	Jul-98	nd	nd	nd	nd	nd	nd	nd				
Miss #2	Jul-98	nd	nd	nd	nd	nd	nd	nd				
Miss #3	Jul-98	nd	nd	nd	nd	nd	nd	nd				
NM #1	Aug-98			nd	nd	10.6/nd	nd	nd	nd	nd		
NM #2	Aug-98			nd	nd	nd	nd	nd	nd	nd		
NM #3	Aug-98			nd	nd	nd	nd	nd	nd	2.32/nd	16.4/nd	nd
Miss # 1	Aug-99	nd	nd	nd	nd	nd	nd	nd				
Miss #2	Aug-99	nd	nd	nd	nd	nd	nd	nd				
Miss #3	Aug-99	nd	nd	nd	nd	nd	nd	nd				
NM #1	Aug-99			nd	nd	nd	nd	nd	nd	nd		
NM #2	Aug-99			nd	nd	nd	nd	nd	nd	nd		
NM #3	Aug-99			nd	nd	nd	nd	nd	nd	nd	nd	nd

nd = nondetectable

* High values were retested

APPENDIX C

Spreadsheet Analysis

New Madrid Floodway - Expected Concentrations, Runoff Coefficients, and Function Factors - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	65.80064134	0	412.4816323	0.982099124	0	8.83889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276		Total Load	835.4046304
Wetland Function Value	-52.64051307	0	-329.9853058	-0.7856793	0	-2.651667636	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276			
Net Yield	13.16012827	0	82.49632646	0.196419825	0	6.187224484	0	0	9.256494	0	268.3690582	0	1.1571	27.8333434	17.606		Final Load	426.2621351
WATERSHED FUNCTION																	**% Net Removal**	**48.98**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	895.0977664	56.53249051	1966.597841	0.523448986	5.757938848	894.0508684	1.046898	0	34.32183	46.84811535	12407.91769	17.29776567	24.421	634.9316503	59.334			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	18669.97843
Wetland Function Value (Both Seasons)	-907.1860264	-51.40499792	-2274.154041	-0.860116725	-1.15158777	-284.43515	-1.27888	0	44.80407	46.84811535	12703.62724	17.84946259	27.731	748.5812159	83.057			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	226.7965066	12.85124948	568.5385102	0.215029181	4.606351079	663.6820167	0.319719	0	41.03391	43.44569694	11888.67342	16.53801533	25.464	678.014179	75.502		Final Load	14245.68054
WATERSHED FUNCTION																	**% Net Removal**	**23.70**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	428.6480055	14.94723079	1178.902557	0.482168735	5.303856086	587.7636881	0.482169	0	16.08763	0.679459985	2521.291196	2.038379955	5.5688	251.2128209	42.97			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	6681.676934
Wetland Function Value (Both Seasons)	-534.0262177	-18.13679014	-1643.997814	-0.827092525	-1.060771217	-192.5489959	-0.82709	0	26.56987	0.679459985	2817.000745	2.590076876	8.879	364.8623866	66.693			
Net Yield	133.5065544	4.534197535	410.9994534	0.206773131	4.243084869	449.2809904	0.206773	0	24.26801	0.631243112	2632.701843	2.390256563	8.114	330.2086801	60.608		Final Load	4061.899685
WATERSHED FUNCTION																	**% Net Removal**	**39.21**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	7027.621657	3700.672445	73335.05998	5.077761313	44.68429955	6976.844044	884.546	2.0311045	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977		Total Load	1111154.334
Wetland Function Value	-5622.097325	-2960.537956	-58668.04799	-4.06220905	-8.93685991	-2093.053213	-707.637	-0.4062209	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			
Net Yield	1405.524331	740.1344889	14667.012	1.015552263	35.74743964	4883.79083	176.9092	1.6248836	3426.171	8423.326475	799723.9424	1019.383459	97488	38418.16617	3631		Final Load	974041.7792
WATERSHED FUNCTION																	**% Net Removal**	**12.34**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	1923.837777	311.3972455	12971.65363	1.938961678	8.531431384	2296.506212	6.204677	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27		Total Load	138147.5767
Wetland Function Value	-1539.070222	-249.1177964	-10377.3229	-1.551169343	-1.706286277	-688.9518635	-4.96374	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			
Net Yield	384.7675554	62.2794491	2594.330725	0.387792336	6.825145107	1607.554348	1.240935	0	515.1697	1671.602913	109475.9176	44.61573612	450.46	3555.091044	509.79		Final Load	120880.0349
WATERSHED FUNCTION																	**% Net Removal**	**12.50**

Table C1. Expected Watershed Functions for Nitrogen - New Madrid Floodway.

New Madrid Floodway - High Retention Scenario - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	65.80064134	0	412.4816323	0.982099124	0	8.83889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276		Total Load	835.4046304
Wetland Function Value	-59.22057721	0	-371.2334691	-0.883889212	0	-7.955002908	0	0	2.008435	0	57.20936848	0	0.2511	6.136286172	3.8551			
Net Yield	6.580064134	0	41.24816323	0.098209912	0	0.883889212	0	0	1.851299	0	53.67381163	0	0.2314	5.56666868	3.5212		Final Load	113.6547337
WATERSHED FUNCTION																	**% Net Removal**	**86.40**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	895.0977664	56.53249051	1966.597841	0.523448986	5.757938848	894.0508684	1.046898	0	34.32183	46.84811535	12407.91769	17.29776567	24.421	634.9316503	59.334			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	18669.97843
Wetland Function Value (Both Seasons)	-1020.58428	-57.83062266	-2558.423296	-0.967631316	-5.182144963	-853.30545	-1.43874	0	8.960815	9.369623071	2540.725448	3.569892518	5.5463	149.7162432	16.611			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	113.3982533	6.42562474	284.2692551	0.107514591	0.575793885	94.81171667	0.159859	0	8.206783	8.689139389	2377.734685	3.307603066	5.0927	135.6028358	15.1		Final Load	3053.482249
WATERSHED FUNCTION																	**% Net Removal**	**83.64**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	428.6480055	14.94723079	1178.902557	0.482168735	5.303856086	587.7636881	0.482169	0	16.08763	0.679459985	2521.291196	2.038379955	5.5688	251.2128209	42.97			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	6681.676934
Wetland Function Value (Both Seasons)	-600.7794949	-20.40388891	-1849.497541	-0.93047909	-4.773470478	-577.6469877	-0.93048	0	5.313974	0.135891997	563.4001491	0.518015375	1.7758	72.97247732	13.339			
Net Yield	66.75327721	2.267098768	205.4997267	0.103386566	0.530385609	64.18299863	0.103387	0	4.853602	0.126248622	526.5403687	0.478051313	1.6228	66.04173602	12.122		Final Load	951.2246317
WATERSHED FUNCTION																	**% Net Removal**	**85.76**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	7027.621657	3700.672445	73335.05998	5.077761313	44.68429955	6976.844044	884.546	2.0311045	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977		Total Load	1111154.334
Wetland Function Value	-6324.859491	-3330.6052	-66001.55398	-4.569985181	-40.2158696	-6279.159639	-796.091	-1.8279941	743.8519	1815.407493	170623.7674	219.698996	21166	8471.925211	795.41			
Net Yield	702.7621657	370.0672445	7333.505998	0.507776131	4.468429955	697.6844044	88.4546	0.2031105	685.2343	1684.665295	159944.7885	203.8766918	19498	7683.633234	726.21		Final Load	199623.6578
WATERSHED FUNCTION																	**% Net Removal**	**82.03**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	1923.837777	311.3972455	12971.65363	1.938961678	8.531431384	2296.506212	6.204677	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27		Total Load	138147.5767
Wetland Function Value	-1731.453999	-280.257521	-11674.48826	-1.74506551	-7.678288246	-2066.855591	-5.58421	0	109.4558	351.7557261	22783.28227	9.388498028	95.708	775.9113782	109.85			
Net Yield	192.3837777	31.13972455	1297.165363	0.193896168	0.853143138	229.6506212	0.620468	0	103.0339	334.3205827	21895.18353	8.923147225	90.092	711.0182088	101.96		Final Load	24996.53678
WATERSHED FUNCTION																	**% Net Removal**	**81.91**

Table C2. High Watershed Functions for Nitrogen - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario A - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	65.80064134	0	412.4816323	0.982099124	0	8.83889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276		Total Load	835.4046304
Wetland Function Value	-6.580064134	0	-41.24816323	-0.098209912	0	-0.883889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276			
Net Yield	59.22057721	0	371.2334691	0.883889212	0	7.955002908	0	0	9.256494	0	268.3690582	0	1.1571	27.8333434	17.606		Final Load	763.5149745
WATERSHED FUNCTION																	**% Net Removal**	**8.61**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	895.0977664	56.53249051	1966.597841	0.523448986	5.757938848	894.0508684	1.046898	0	34.32183	46.84811535	12407.91769	17.29776567	24.421	634.9316503	59.334			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	18669.97843
Wetland Function Value (Both Seasons)	-113.3982533	-6.42562474	-284.2692551	-0.107514591	-0.575793885	-94.81171667	-0.15986	0	44.80407	46.84811535	12703.62724	17.84946259	27.731	748.5812159	83.057			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	1020.58428	57.83062266	2558.423296	0.967631316	5.182144963	853.30545	1.438735	0	41.03391	43.44569694	11888.67342	16.53801533	25.464	678.014179	75.502		Final Load	17266.40332
WATERSHED FUNCTION																	**% Net Removal**	**7.52**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	428.6480055	14.94723079	1178.902557	0.482168735	5.303856086	587.7636881	0.482169	0	16.08763	0.679459985	2521.291196	2.038379955	5.5688	251.2128209	42.97			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723			6681.676934
Wetland Function Value (Both Seasons)	-66.75327721	-2.267098768	-205.4997267	-0.103386566	-0.530385609	-64.18299863	-0.10339	0	26.56987	0.679459985	2817.000745	2.590076876	8.879	364.8623866	66.693			
Net Yield	600.7794949	20.40388891	1849.497541	0.93047909	4.773470478	577.6469877	0.930479	0	24.26801	0.631243112	2632.701843	2.390256563	8.114	330.2086801	60.608		Final Load	6113.884199
WATERSHED FUNCTION																	**% Net Removal**	**8.50**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	7027.621657	3700.672445	73335.05998	5.077761313	44.68429955	6976.844044	884.546	2.0311045	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			1111154.334
Wetland Function Value	-702.7621657	-370.0672445	-7333.505998	-0.507776131	-4.468429955	-697.6844044	-88.4546	-0.2031105	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			
Net Yield	6324.859491	3330.6052	66001.55398	4.569985181	40.2158696	6279.159639	796.0914	1.8279941	3426.171	8423.326475	799723.9424	1019.383459	97488	38418.16617	3631		Final Load	1034908.904
WATERSHED FUNCTION																	**% Net Removal**	**6.86**
Scenario 5 - 2 year flood																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	1923.837777	311.3972455	12971.65363	1.938961678	8.531431384	2296.506212	6.204677	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			138147.5767
Wetland Function Value	-192.3837777	-31.13972455	-1297.165363	-0.193896168	-0.853143138	-229.6506212	-0.62047	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			
Net Yield	1731.453999	280.257521	11674.48826	1.74506551	7.678288246	2066.855591	5.58421	0	515.1697	1671.602913	109475.9176	44.61573612	450.46	3555.091044	509.79		Final Load	131990.7119
WATERSHED FUNCTION																	**% Net Removal**	**4.46**

Table C3. Low Watershed Functions for Nitrogen - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario B - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	65.80064134	0	412.4816323	0.982099124	0	8.83889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276		Total Load	835.4046304
Wetland Function Value	-6.580064134	0	-41.24816323	-0.098209912	0	-0.883889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276			
Net Yield	59.22057721	0	371.2334691	0.883889212	0	7.955002908	0	0	9.256494	0	268.3690582	0	1.1571	27.8333434	17.606		Final Load	763.5149745
WATERSHED FUNCTION																	**% Net Removal**	**8.61**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	895.0977664	56.53249051	1966.597841	0.523448986	5.757938848	894.0508684	1.046898	0	41.42432	59.6720466	16962.00679	22.03275567	29.475	677.8424972	66.846			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723		Total Load	23304.20572
Wetland Function Value (Both Seasons)	-113.3982533	-6.42562474	-284.2692551	-0.107514591	-0.575793885	-94.81171667	-0.15986	0	51.90656	59.6720466	17257.71634	22.58445259	32.785	791.4920628	90.569			
* Export Coefficients were **NOT** reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	1020.58428	57.83062266	2558.423296	0.967631316	5.182144963	853.30545	1.438735	0	48.1364	56.26962819	16442.76252	21.27300533	30.517	720.9250259	83.014		Final Load	21900.6306
WATERSHED FUNCTION																	**% Net Removal**	**6.02**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	428.6480055	14.94723079	1178.902557	0.482168735	5.303856086	587.7636881	0.482169	0	19.63887	0.876751235	3495.302921	2.630253705	6.7981	269.5381428	48.813			
Load Season 2 **	238.8847666	7.723756888	876.0947099	0.551696921	0	54.06629822	0.551697	0	10.48224	0	295.7095494	0.551696921	3.3102	113.6495656	23.723			7685.42652
Wetland Function Value (Both Seasons)	-66.75327721	-2.267098768	-205.4997267	-0.103386566	-0.530385609	-64.18299863	-0.10339	0	30.12111	0.876751235	3791.01247	3.181950626	10.108	383.1877085	72.536			
Net Yield	600.7794949	20.40388891	1849.497541	0.93047909	4.773470478	577.6469877	0.930479	0	27.81925	0.828534362	3606.713568	2.982130313	9.3433	348.534002	66.451		Final Load	7117.633786
WATERSHED FUNCTION																	**% Net Removal**	**7.39**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	7027.621657	3700.672445	73335.05998	5.077761313	44.68429955	6976.844044	884.546	2.0311045	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			1111154.334
Wetland Function Value	-702.7621657	-370.0672445	-7333.505998	-0.507776131	-4.468429955	-697.6844044	-88.4546	-0.2031105	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			
Net Yield	6324.859491	3330.6052	66001.55398	4.569985181	40.2158696	6279.159639	796.0914	1.8279941	3426.171	8423.326475	799723.9424	1019.383459	97488	38418.16617	3631		Final Load	1034908.904
WATERSHED FUNCTION																	**% Net Removal**	**6.86**
Scenario 5 - 2 year flood																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	1923.837777	311.3972455	12971.65363	1.938961678	8.531431384	2296.506212	6.204677	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			138147.5767
Wetland Function Value	-192.3837777	-31.13972455	-1297.165363	-0.193896168	-0.853143138	-229.6506212	-0.62047	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			
Net Yield	1731.453999	280.257521	11674.48826	1.74506551	7.678288246	2066.855591	5.58421	0	515.1697	1671.602913	109475.9176	44.61573612	450.46	3555.091044	509.79		Final Load	131990.7119
WATERSHED FUNCTION																	**% Net Removal**	**4.46**

Table C4. Low (no runoff reduction) Watershed Functions for Nitrogen - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations (2X for Season 2), Runoff Coefficients, and Function Factors - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	65.80064134	0	412.4816323	0.982099124	0	8.83889212	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276		Total Load	835.4046304
Wetland Function Value	-52.64051307	0	-329.9853058	-0.7856793	0	-2.651667636	0	0	10.04217	0	286.0468424	0	1.2553	30.68143086	19.276			
Net Yield	13.16012827	0	82.49632646	0.196419825	0	6.187224484	0	0	9.256494	0	268.3690582	0	1.1571	27.8333434	17.606		Final Load	426.2621351
WATERSHED FUNCTION																	**% Net Removal**	**48.98**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	895.0977664	56.53249051	1966.597841	0.523448986	5.757938848	894.0508684	1.046898	0	34.32183	46.84811535	12407.91769	17.29776567	24.421	634.9316503	59.334			
Load Season 2 **	597.2119165	19.30939222	2190.236775	1.379242301	0	135.1657455	1.379242	0	26.2056	0	739.2738736	1.379242301	8.2755	284.1239141	59.307		Total Load	21107.92712
Wetland Function Value (Both Seasons)	-1193.847746	-60.67350618	-3325.467693	-1.52215303	-1.15158777	-308.7649842	-1.94091	0	60.52744	46.84811535	13147.19156	18.67700797	32.697	919.0555644	118.64			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	298.4619366	15.16837655	831.3669232	0.380538258	4.606351079	720.4516298	0.485228	0	55.18494	43.44569694	12287.88132	17.28280617	29.932	831.4410926	107.53		Final Load	15243.61751
WATERSHED FUNCTION																	**% Net Removal**	**27.78**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	428.6480055	14.94723079	1178.902557	0.482168735	5.303856086	587.7636881	0.482169	0	16.08763	0.679459985	2521.291196	2.038379955	5.5688	251.2128209	42.97			
Load Season 2 **	597.2119165	19.30939222	2190.236775	1.379242301	0	135.1657455	1.379242	0	26.2056	0	739.2738736	1.379242301	8.2755	284.1239141	59.307		Total Load	9119.625626
Wetland Function Value (Both Seasons)	-820.6879376	-27.40529841	-2695.311466	-1.489128829	-1.060771217	-216.8788301	-1.48913	0	42.29323	0.679459985	3260.56507	3.417622257	13.844	535.336735	102.28			
Net Yield	205.1719844	6.851324602	673.8278664	0.372282207	4.243084869	506.0506036	0.372282	0	38.41903	0.631243112	3031.909735	3.135047406	12.583	483.6355937	92.634		Final Load	5059.83666
WATERSHED FUNCTION																	**% Net Removal**	**44.52**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	7027.621657	3700.672445	73335.05998	5.077761313	44.68429955	6976.844044	884.546	2.0311045	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977		Total Load	1111154.334
Wetland Function Value	-5622.097325	-2960.537956	-58668.04799	-4.06220905	-8.93685991	-2093.053213	-707.637	-0.4062209	3719.26	9077.037466	853118.8368	1098.49498	105828	42359.62605	3977			
Net Yield	1405.524331	740.1344889	14667.012	1.015552263	35.74743964	4883.79083	176.9092	1.6248836	3426.171	8423.326475	799723.9424	1019.383459	97488	38418.16617	3631		Final Load	974041.7792
WATERSHED FUNCTION																	**% Net Removal**	**12.34**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	1923.837777	311.3972455	12971.65363	1.938961678	8.531431384	2296.506212	6.204677	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27		Total Load	138147.5767
Wetland Function Value	-1539.070222	-249.1177964	-10377.3229	-1.551169343	-1.706286277	-688.9518635	-4.96374	0	547.2789	1758.778631	113916.4113	46.94249014	478.54	3879.556891	549.27			
Net Yield	384.7675554	62.2794491	2594.330725	0.387792336	6.825145107	1607.554348	1.240935	0	515.1697	1671.602913	109475.9176	44.61573612	450.46	3555.091044	509.79		Final Load	120880.0349
WATERSHED FUNCTION																	**% Net Removal**	**12.50**

Table C5. Expected (concentration doubled) Watershed Functions for Nitrogen - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations, Runoff Coefficients, and Function Factors - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	9.212089788	0	57.74742852	0.137493877	0	1.237444897	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649		Total Load	109.2041139
Wetland Function Value	-3.684835915	0	-23.09897141	-0.068746939	0	-0.247488979	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649			
Net Yield	5.527253873	0	34.64845711	0.068746939	0	0.989955917	0	0	1.346092	0	30.28706814	0	0.1683	3.705953201	2.1312		Final Load	78.87296452
WATERSHED FUNCTION																	**% Net Removal**	**27.77**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	125.3136873	7.914548671	275.3236978	0.073282858	0.806111439	125.1671216	0.146566	0	4.968151	5.421023274	1433.502536	2.001608594	3.535	85.17149098	7.3351			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	2279.84238
Wetland Function Value (Both Seasons)	-62.06971325	-3.552007313	-153.9342146	-0.071122487	-0.080611144	-26.38508177	-0.08621	0	6.278431	5.421023274	1470.46623	2.070570709	3.9488	99.37768668	10.301			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	93.10456987	5.328010969	230.9013219	0.071122487	0.725500295	105.5403271	0.129317	0	5.766332	4.944684697	1356.816261	1.887795638	3.6363	89.66877586	9.2785		Final Load	1907.798764
WATERSHED FUNCTION																	**% Net Removal**	**16.32**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	60.01072077	2.09261231	165.046358	0.067503623	0.742539852	82.28691634	0.067504	0	2.333815	0.077621123	288.0466524	0.232863369	0.8079	33.58160037	5.2601			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	843.8170599
Wetland Function Value (Both Seasons)	-35.94852664	-1.223232769	-109.8232787	-0.068232869	-0.074253985	-17.80904072	-0.05459	0	3.644095	0.077621123	325.0103461	0.301825484	1.2216	47.78779607	8.2255			
Net Yield	53.92278996	1.834849153	164.7349181	0.068232869	0.668285867	71.23616289	0.081879	0	3.337558	0.070870761	299.6520642	0.274678185	1.1195	43.10675152	7.4092		Final Load	647.5177008
WATERSHED FUNCTION																	**% Net Removal**	**23.26**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	878.4527071	462.5840556	9166.882498	0.634720164	5.585537444	872.1055054	110.5683	0.2538881	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01		Total Load	122805.3014
Wetland Function Value	-351.3810828	-185.0336222	-3666.752999	-0.317360082	-0.558553744	-174.4211011	-44.2273	-0.0507776	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01			
Net Yield	527.0716243	277.5504333	5500.129499	0.317360082	5.0269837	697.6844044	66.34095	0.2031105	458.2005	865.6775603	83475.04834	104.7635264	13038	4591.210489	394.76		Final Load	110001.5866
WATERSHED FUNCTION																	**% Net Removal**	**10.43**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	240.4797221	38.92465569	1621.456703	0.24237021	1.066428923	287.0632765	0.775585	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995		Total Load	13576.46646
Wetland Function Value	-96.19188886	-15.56986228	-648.5826814	-0.121185105	-0.106642892	-57.41265529	-0.31023	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995			
Net Yield	144.2878333	23.35479341	972.874022	0.121185105	0.959786031	229.6506212	0.465351	0	72.98293	143.5609617	10093.06353	3.831698266	63.816	398.8853271	46.06		Final Load	12193.91389
WATERSHED FUNCTION																	**% Net Removal**	**10.18**

Table C6. Expected Watershed Functions for Phosphorus - New Madrid Floodway.

New Madrid Floodway - High Retention Scenario - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	9.212089788	0	57.74742852	0.137493877	0	1.237444897	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649		Total Load	109.2041139
Wetland Function Value	-8.290880809	0	-51.97268567	-0.12374449	0	-1.113700407	0	0	0.291217	0	6.552391587	0	0.0364	0.820937089	0.473			
Net Yield	0.921208979	0	5.774742852	0.013749388	0	0.12374449	0	0	0.269218	0	6.057413629	0	0.0337	0.74119064	0.4262		Final Load	14.36115584
WATERSHED FUNCTION																	**% Net Removal**	**86.85**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	125.3136873	7.914548671	275.3236978	0.073282858	0.806111439	125.1671216	0.146566	0	4.968151	5.421023274	1433.502536	2.001608594	3.535	85.17149098	7.3351			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	2279.84238
Wetland Function Value (Both Seasons)	-139.6568548	-7.992016454	-346.3519828	-0.128020476	-0.725500295	-118.732868	-0.19398	0	1.255686	1.084204655	294.093246	0.414114142	0.7898	19.87553734	2.0601			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	15.51742831	0.888001828	38.48355365	0.014224497	0.080611144	13.19254089	0.021553	0	1.153266	0.988936939	271.3632521	0.377559128	0.7273	17.93375517	1.8557		Final Load	362.5976321
WATERSHED FUNCTION																	**% Net Removal**	**84.10**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	60.01072077	2.09261231	165.046358	0.067503623	0.742539852	82.28691634	0.067504	0	2.333815	0.077621123	288.0466524	0.232863369	0.8079	33.58160037	5.2601			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	843.8170599
Wetland Function Value (Both Seasons)	-80.88418494	-2.752273729	-247.1023771	-0.122819164	-0.668285867	-80.14068325	-0.12282	0	0.728819	0.015524225	65.00206922	0.060365097	0.2443	9.557559215	1.6451			
Net Yield	8.98713166	0.305808192	27.45581968	0.013646574	0.074253985	8.904520361	0.013647	0	0.667512	0.014174152	59.93041283	0.054935637	0.2239	8.621350303	1.4818		Final Load	116.7489435
WATERSHED FUNCTION																	**% Net Removal**	**86.16**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	878.4527071	462.5840556	9166.882498	0.634720164	5.585537444	872.1055054	110.5683	0.2538881	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01		Total Load	122805.3014
Wetland Function Value	-790.6074364	-416.32565	-8250.194248	-0.571248148	-5.0269837	-784.8949549	-99.5114	-0.2284993	98.96731	189.4782868	18029.88203	22.93049331	2816	1016.778595	87.603			
Net Yield	87.84527071	46.25840556	916.6882498	0.063472016	0.558553744	87.21055054	11.05683	0.0253888	91.6401	173.1355121	16695.00967	20.95270528	2607.5	918.2420978	78.953		Final Load	21735.15916
WATERSHED FUNCTION																	**% Net Removal**	**82.30**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	240.4797221	38.92465569	1621.456703	0.24237021	1.066428923	287.0632765	0.775585	0	76.99658	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995		Total Load	13580.48011
Wetland Function Value	-216.4317499	-35.03219012	-1459.311033	-0.218133189	-0.959786031	-258.3569488	-0.69803	0	15.39932	30.89158526	2129.625048	0.824508503	13.465	87.88871161	10.199			
Net Yield	24.04797221	3.892465569	162.1456703	0.024237021	0.106642892	28.70632765	0.077558	0	14.59659	28.71219234	2018.612706	0.766339653	12.763	79.77706543	9.212		Final Load	2383.440934
WATERSHED FUNCTION																	**% Net Removal**	**82.45**

Table C7. High Watershed Functions for Phosphorus - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario A - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	9.212089788	0	57.74742852	0.137493877	0	1.237444897	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649		Total Load	109.2041139
Wetland Function Value	-0.921208979	0	-5.774742852	-0.013749388	0	-0.12374449	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649			
Net Yield	8.290880809	0	51.97268567	0.12374449	0	1.113700407	0	0	1.346092	0	30.28706814	0	0.1683	3.705953201	2.1312		Final Load	99.13956205
WATERSHED FUNCTION																	**% Net Removal**	**9.22**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	125.3136873	7.914548671	275.3236978	0.073282858	0.806111439	125.1671216	0.146566	0	4.968151	5.421023274	1433.502536	2.001608594	3.535	85.17149098	7.3351			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	2279.84238
Wetland Function Value (Both Seasons)	-15.51742831	-0.888001828	-38.48355365	-0.014224497	-0.080611144	-13.19254089	-0.02155	0	6.278431	5.421023274	1470.46623	2.070570709	3.9488	99.37768668	10.301			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	139.6568548	7.992016454	346.3519828	0.128020476	0.725500295	118.732868	0.193975	0	5.766332	4.944684697	1356.816261	1.887795638	3.6363	89.66877586	9.2785		Final Load	2085.779813
WATERSHED FUNCTION																	**% Net Removal**	**8.51**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	60.01072077	2.09261231	165.046358	0.067503623	0.742539852	82.28691634	0.067504	0	2.333815	0.077621123	288.0466524	0.232863369	0.8079	33.58160037	5.2601			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	843.8170599
Wetland Function Value (Both Seasons)	-8.98713166	-0.305808192	-27.45581968	-0.013646574	-0.074253985	-8.904520361	-0.01365	0	3.644095	0.077621123	325.0103461	0.301825484	1.2216	47.78779607	8.2255			
Net Yield	80.88418494	2.752273729	247.1023771	0.122819164	0.668285867	80.14068325	0.122819	0	3.337558	0.070870761	299.6520642	0.274678185	1.1195	43.10675152	7.4092		Final Load	766.7640258
WATERSHED FUNCTION																	**% Net Removal**	**9.13**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	878.4527071	462.5840556	9166.882498	0.634720164	5.585537444	872.1055054	110.5683	0.2538881	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01		Total Load	122805.3014
Wetland Function Value	-87.84527071	-46.25840556	-916.6882498	-0.063472016	-0.558553744	-87.21055054	-11.0568	-0.0253888	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01			
Net Yield	790.6074364	416.32565	8250.194248	0.571248148	5.0269837	784.8949549	99.51143	0.2284993	458.2005	865.6775603	83475.04834	104.7635264	13038	4591.210489	394.76		Final Load	113274.6227
WATERSHED FUNCTION																	**% Net Removal**	**7.76**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	240.4797221	38.92465569	1621.456703	0.24237021	1.066428923	287.0632765	0.775585	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995		Total Load	13576.46646
Wetland Function Value	-24.04797221	-3.892465569	-162.1456703	-0.024237021	-0.106642892	-28.70632765	-0.07756	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995			
Net Yield	216.4317499	35.03219012	1459.311033	0.218133189	0.959786031	258.3569488	0.698026	0	72.98293	143.5609617	10093.06353	3.831698266	63.816	398.8853271	46.06		Final Load	12793.20816
WATERSHED FUNCTION																	**% Net Removal**	**5.77**

Table C8. Low Watershed Functions for Phosphorus - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario B - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	9.212089788	0	57.74742852	0.137493877	0	1.237444897	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649		Total Load	109.2041139
Wetland Function Value	-0.921208979	0	-5.774742852	-0.013749388	0	-0.12374449	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649			
Net Yield	8.290880809	0	51.97268567	0.12374449	0	1.113700407	0	0	1.346092	0	30.28706814	0	0.1683	3.705953201	2.1312		Final Load	99.13956205
WATERSHED FUNCTION																	**% Net Removal**	**9.22**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	125.3136873	7.914548671	275.3236978	0.073282858	0.806111439	125.1671216	0.146566	0	6.125593	6.078660774	1767.46907	2.244428594	4.3586	87.46006948	7.4153			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	2619.059087
Wetland Function Value (Both Seasons)	-15.51742831	-0.888001828	-38.48355365	-0.014224497	-0.080611144	-13.19254089	-0.02155	0	7.435873	6.078660774	1804.432764	2.313390709	4.7724	101.6662652	10.381			
* Export Coefficients were **NOT** reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	139.6568548	7.992016454	346.3519828	0.128020476	0.725500295	118.732868	0.193975	0	6.923774	5.602322197	1690.782795	2.130615638	4.4598	91.95735436	9.3586		Final Load	2424.99652
WATERSHED FUNCTION																	**% Net Removal**	**7.41**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	60.01072077	2.09261231	165.046358	0.067503623	0.742539852	82.28691634	0.067504	0	2.912536	0.087738623	359.4741789	0.263215869	1.0082	34.55895087	5.3224			
Load Season 2 **	29.86059583	0.965469611	109.5118387	0.068962115	0	6.758287277	0.068962	0	1.31028	0	36.96369368	0.068962115	0.4138	14.2061957	2.9654		Total Load	917.1037782
Wetland Function Value (Both Seasons)	-8.98713166	-0.305808192	-27.45581968	-0.013646574	-0.074253985	-8.904520361	-0.01365	0	4.222816	0.087738623	396.4378726	0.332177984	1.422	48.76514657	8.2878			
Net Yield	80.88418494	2.752273729	247.1023771	0.122819164	0.668285867	80.14068325	0.122819	0	3.916279	0.080988261	371.0795907	0.305030685	1.3198	44.08410202	7.4715		Final Load	840.0507441
WATERSHED FUNCTION																	**% Net Removal**	**8.40**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	878.4527071	462.5840556	9166.882498	0.634720164	5.585537444	872.1055054	110.5683	0.2538881	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01		Total Load	122805.3014
Wetland Function Value	-87.84527071	-46.25840556	-916.6882498	-0.063472016	-0.558553744	-87.21055054	-11.0568	-0.0253888	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01			
Net Yield	790.6074364	416.32565	8250.194248	0.571248148	5.0269837	784.8949549	99.51143	0.2284993	458.2005	865.6775603	83475.04834	104.7635264	13038	4591.210489	394.76		Final Load	113274.6227
WATERSHED FUNCTION																	**% Net Removal**	**7.76**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	240.4797221	38.92465569	1621.456703	0.24237021	1.066428923	287.0632765	0.775585	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995		Total Load	13576.46646
Wetland Function Value	-24.04797221	-3.892465569	-162.1456703	-0.024237021	-0.106642892	-28.70632765	-0.07756	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995			
Net Yield	216.4317499	35.03219012	1459.311033	0.218133189	0.959786031	258.3569488	0.698026	0	72.98293	143.5609617	10093.06353	3.831698266	63.816	398.8853271	46.06		Final Load	12793.20816
WATERSHED FUNCTION																	**% Net Removal**	**5.77**

Table C9. Low (no runoff reduction) Watershed Functions for Phosphorus - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations (2X Fof Season 2), Runoff Coefficients, and Function Factors - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	9.212089788	0	57.74742852	0.137493877	0	1.237444897	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649		Total Load	109.2041139
Wetland Function Value	-3.684835915	0	-23.09897141	-0.068746939	0	-0.247488979	0	0	1.456087	0	32.76195794	0	0.182	4.104685445	2.3649			
Net Yield	5.527253873	0	34.64845711	0.068746939	0	0.989955917	0	0	1.346092	0	30.28706814	0	0.1683	3.705953201	2.1312		Final Load	78.87296452
WATERSHED FUNCTION																	**% Net Removal**	**27.77**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	125.3136873	7.914548671	275.3236978	0.073282858	0.806111439	125.1671216	0.146566	0	4.968151	5.421023274	1433.502536	2.001608594	3.535	85.17149098	7.3351			
Load Season 2 **	83.60966831	2.703314911	306.6331485	0.193093922	0	18.92320438	0.193094	0	3.668785	0	103.4983423	0.193093922	1.1586	39.77734797	8.303		Total Load	2645.534684
Wetland Function Value (Both Seasons)	-83.56934224	-4.247145433	-232.7827385	-0.13318839	-0.080611144	-28.81806519	-0.13586	0	8.636935	5.421023274	1537.000879	2.194702516	4.6936	124.9488389	15.638			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	125.3540134	6.370718149	349.1741077	0.13318839	0.725500295	115.2722608	0.203796	0	7.888986	4.944684697	1416.697444	1.999514264	4.3066	112.6828129	14.082		Final Load	2159.835985
WATERSHED FUNCTION																	**% Net Removal**	**18.36**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	60.01072077	2.09261231	165.046358	0.067503623	0.742539852	82.28691634	0.067504	0	2.333815	0.077621123	288.0466524	0.232863369	0.8079	33.58160037	5.2601			
Load Season 2 **	83.60966831	2.703314911	306.6331485	0.193093922	0	18.92320438	0.193094	0	3.668785	0	103.4983423	0.193093922	1.1586	39.77734797	8.303		Total Load	1209.509364
Wetland Function Value (Both Seasons)	-57.44815563	-1.918370888	-188.6718026	-0.130298773	-0.074253985	-20.24202414	-0.10424	0	6.0026	0.077621123	391.5449947	0.425957291	1.9664	73.35894834	13.563			
Net Yield	86.17223345	2.877556333	283.0077039	0.130298773	0.668285867	80.96809657	0.156359	0	5.460212	0.070870761	359.5332479	0.386396812	1.7898	66.12078856	12.213		Final Load	899.554922
WATERSHED FUNCTION																	**% Net Removal**	**25.63**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	878.4527071	462.5840556	9166.882498	0.634720164	5.585537444	872.1055054	110.5683	0.2538881	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01		Total Load	122805.3014
Wetland Function Value	-351.3810828	-185.0336222	-3666.752999	-0.317360082	-0.558553744	-174.4211011	-44.2273	-0.0507776	494.8365	947.3914342	90149.41015	114.6524666	14080	5083.892975	438.01			
Net Yield	527.0716243	277.5504333	5500.129499	0.317360082	5.0269837	697.6844044	66.34095	0.2031105	458.2005	865.6775603	83475.04834	104.7635264	13038	4591.210489	394.76		Final Load	110001.5866
WATERSHED FUNCTION																	**% Net Removal**	**10.43**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	240.4797221	38.92465569	1621.456703	0.24237021	1.066428923	287.0632765	0.775585	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995		Total Load	13576.46646
Wetland Function Value	-96.19188886	-15.56986228	-648.5826814	-0.121185105	-0.106642892	-57.41265529	-0.31023	0	72.98293	154.4579263	10648.12524	4.122542517	67.326	439.443558	50.995			
Net Yield	144.2878333	23.35479341	972.874022	0.121185105	0.959786031	229.6506212	0.465351	0	72.98293	143.5609617	10093.06353	3.831698266	63.816	398.8853271	46.06		Final Load	12193.91389
WATERSHED FUNCTION																	**% Net Removal**	**10.18**

Table C10. Expected (concentration doubled) Watershed Functions for Phosphorus - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations, Runoff Coefficients, and Function Factors - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	175.4683769	0	1099.951019	2.618930999	0	23.57037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999		Total Load	1951.295111
Wetland Function Value	140.3747015	0	879.9608155	-1.309465499	0	-4.714075798	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999			
Net Yield	140.3747015	0	879.9608155	1.309465499	0	18.85630319	0	0	20.02184	0	450.4913818	0	2.5027	72.57916706	42.546		Final Load	1628.642812
WATERSHED FUNCTION																	**% Net Removal**	**16.54**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	2386.927377	150.753308	5244.26091	1.395863963	15.3545036	2384.135649	2.791728	0	76.37292	95.46614761	22036.52429	35.24903912	54.342	1661.110968	145.4			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	39707.75102
Wetland Function Value (Both Seasons)	2546.567946	141.1993315	6531.661287	-1.617426849	-1.53545036	-512.8713286	3.704574	0	111.3137	95.46614761	23022.22279	37.08802885	65.376	2039.942854	224.48			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	2546.567946	141.1993315	6531.661287	1.617426849	13.81905324	2051.485315	3.704574	0	100.5611	86.39303185	20829.29865	33.55405637	59.108	1844.187451	202.75		Final Load	34445.90952
WATERSHED FUNCTION																	**% Net Removal**	**13.25**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	1143.061348	39.8592821	3143.740153	1.285783294	14.14361623	1567.369835	1.285783	0	35.32436	1.358629294	4359.841403	4.075887881	12.228	656.2179488	104.61			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	16502.06991
Wetland Function Value (Both Seasons)	1551.475123	52.48411072	4851.244682	-1.562386514	-1.414361623	-349.5181658	2.499818	0	70.26517	1.358629294	5345.539901	5.914877616	23.262	1035.049834	183.69			
Net Yield	1551.475123	52.48411072	4851.244682	1.562386514	12.72925461	1398.072663	2.499818	0	63.42805	1.230050964	4834.362193	5.345243655	21.001	935.0633127	165.88		Final Load	13896.38072
WATERSHED FUNCTION																	**% Net Removal**	**15.79**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	23425.40552	12335.57482	244450.1999	16.92587104	148.9476652	23256.14681	2948.487	6.7703484	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030		Total Load	2637701.637
Wetland Function Value	18740.32442	9868.459852	195560.16	-8.462935521	-14.89476652	-4651.229362	2358.789	-1.3540697	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030			
Net Yield	18740.32442	9868.459852	195560.16	8.462935521	134.0528987	18604.91745	2358.789	5.4162787	9213.119	20549.14915	1678447.607	2486.839706	262149	123898.2488	10876		Final Load	2352901.176
WATERSHED FUNCTION																	**% Net Removal**	**10.80**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	6412.79259	1037.990818	43238.84542	6.463205594	28.43810461	7655.020706	20.68226	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2		Total Load	240685.9426
Wetland Function Value	5130.234072	830.3926547	34591.07634	-3.231602797	-2.843810461	-1531.004141	16.54581	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2			
Net Yield	5130.234072	830.3926547	34591.07634	3.231602797	25.59429415	6124.016564	16.54581	0	1083.909	2942.787128	149897.5648	78.54414042	947.77	10952.98038	1332.6		Final Load	213957.2751
WATERSHED FUNCTION																	**% Net Removal**	**11.11**

Table C11. Expected Watershed Functions for Organic Carbon - New Madrid Floodway.

New Madrid Floodway - High Retention Scenario - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	175.4683769	0	1099.951019	2.618930999	0	23.57037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999		Total Load	1951.295111
Wetland Function Value	-157.9215392	0	-989.9559175	-2.357037899	0	-21.21334109	0	0	4.423397	0	99.52642795	0	0.5529	16.03481339	9.3997			
Net Yield	17.54683769	0	109.9951019	0.2618931	0	2.357037899	0	0	4.004368	0	90.09827636	0	0.5005	14.51583341	8.5093		Final Load	247.7891759
WATERSHED FUNCTION																	**% Net Removal**	**87.30**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	2386.927377	150.753308	5244.26091	1.395863963	15.3545036	2384.135649	2.791728	0	76.37292	95.46614761	22036.52429	35.24903912	54.342	1661.110968	145.4			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	39707.75102
Wetland Function Value (Both Seasons)	-2864.888939	-158.8492479	-7348.118948	-2.911368329	-13.81905324	-2307.920979	-4.16765	0	22.26274	19.09322952	4604.444557	7.41760577	13.075	407.9885708	44.896			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	318.3209932	17.64991643	816.4576609	0.32348537	1.53545036	256.4356643	0.463072	0	20.11223	17.27860637	4165.859729	6.710811273	11.822	368.8374902	40.55		Final Load	6042.35716
WATERSHED FUNCTION																	**% Net Removal**	**84.78**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	1143.061348	39.8592821	3143.740153	1.285783294	14.14361623	1567.369835	1.285783	0	35.32436	1.358629294	4359.841403	4.075887881	12.228	656.2179488	104.61			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	16502.06991
Wetland Function Value (Both Seasons)	-1745.409513	-59.04462456	-5457.650267	-2.812295726	-12.72925461	-1572.831746	-2.8123	0	14.05303	0.271725859	1069.10798	1.182975523	4.6523	207.0099669	36.738			
Net Yield	193.9343903	6.56051384	606.4055853	0.312477303	1.414361623	174.7590829	0.312477	0	12.68561	0.246010193	966.8724385	1.069048731	4.2002	187.0126625	33.177		Final Load	2188.961425
WATERSHED FUNCTION																	**% Net Removal**	**86.74**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	23425.40552	12335.57482	244450.1999	16.92587104	148.9476652	23256.14681	2948.487	6.7703484	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030		Total Load	2637701.637
Wetland Function Value	-21082.86497	-11102.01733	-220005.1799	-15.23328394	-134.0528987	-20930.53213	-2653.64	-6.0933136	2038.016	4545.637157	371286.1176	550.1089553	57990	27407.28968	2405.9			
Net Yield	2342.540552	1233.557482	24445.01999	1.692587104	14.89476652	2325.614681	294.8487	0.6770348	1842.624	4109.829829	335689.5213	497.3679411	52430	24779.64976	2175.3		Final Load	452182.9644
WATERSHED FUNCTION																	**% Net Removal**	**82.86**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	6412.79259	1037.990818	43238.84542	6.463205594	28.43810461	7655.020706	20.68226	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2		Total Load	240685.9426
Wetland Function Value	-5771.513331	-934.1917366	-38914.96088	-5.816885035	-25.59429415	-6889.518635	-18.614	0	238.188	646.6745702	32939.84209	17.25999743	208.27	2406.906641	292.84			
Net Yield	641.279259	103.7990818	4323.884542	0.646320559	2.843810461	765.5020706	2.068226	0	216.7818	588.5574255	29979.51296	15.70882808	189.55	2190.596076	266.53		Final Load	39287.26007
WATERSHED FUNCTION																	**% Net Removal**	**83.68**

Table C12. High Watershed Functions for Organic Carbon - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario A - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	175.4683769	0	1099.951019	2.618930999	0	23.57037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999		Total Load	1951.295111
Wetland Function Value	-17.54683769	0	-109.9951019	-0.2618931	0	-2.357037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999			
Net Yield	157.9215392	0	989.9559175	2.357037899	0	21.21334109	0	0	20.02184	0	450.4913818	0	2.5027	72.57916706	42.546		Final Load	1759.589362
WATERSHED FUNCTION																	**% Net Removal**	**9.82**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	2386.927377	150.753308	5244.26091	1.395863963	15.3545036	2384.135649	2.791728	0	76.37292	95.46614761	22036.52429	35.24903912	54.342	1661.110968	145.4			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	39707.75102
Wetland Function Value (Both Seasons)	-318.3209932	-17.64991643	-816.4576609	-0.32348537	-1.53545036	-256.4356643	-0.46307	0	111.3137	95.46614761	23022.22279	37.08802885	65.376	2039.942854	224.48			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	2864.888939	158.8492479	7348.118948	2.911368329	13.81905324	2307.920979	4.167646	0	100.5611	86.39303185	20829.29865	33.55405637	59.108	1844.187451	202.75		Final Load	35856.53077
WATERSHED FUNCTION																	**% Net Removal**	**9.70**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	1143.061348	39.8592821	3143.740153	1.285783294	14.14361623	1567.369835	1.285783	0	35.32436	1.358629294	4359.841403	4.075887881	12.228	656.2179488	104.61			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	16502.06991
Wetland Function Value (Both Seasons)	-193.9343903	-6.56051384	-606.4055853	-0.312477303	-1.414361623	-174.7590829	-0.31248	0	70.26517	1.358629294	5345.539901	5.914877616	23.262	1035.049834	183.69			
Net Yield	1745.409513	59.04462456	5457.650267	2.812295726	12.72925461	1572.831746	2.812296	0	63.42805	1.230050964	4834.362193	5.345243655	21.001	935.0633127	165.88		Final Load	14879.60268
WATERSHED FUNCTION																	**% Net Removal**	**9.83**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	23425.40552	12335.57482	244450.1999	16.92587104	148.9476652	23256.14681	2948.487	6.7703484	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030		Total Load	2637701.637
Wetland Function Value	-2342.540552	-1233.557482	-24445.01999	-1.692587104	-14.89476652	-2325.614681	-294.849	-0.6770348	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030			
Net Yield	21082.86497	11102.01733	220005.1799	15.23328394	134.0528987	20930.53213	2653.638	6.0933136	9213.119	20549.14915	1678447.607	2486.839706	262149	123898.2488	10876		Final Load	2383550.205
WATERSHED FUNCTION																	**% Net Removal**	**9.64**
Scenario 5 - Moderate High Flow (exisiting conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	6412.79259	1037.990818	43238.84542	6.463205594	28.43810461	7655.020706	20.68226	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2		Total Load	240685.9426
Wetland Function Value	-641.279259	-103.7990818	-4323.884542	-0.646320559	-2.843810461	-765.5020706	-2.06823	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2			
Net Yield	5771.513331	934.1917366	38914.96088	5.816885035	25.59429415	6889.518635	18.61403	0	1083.909	2942.787128	149897.5648	78.54414042	947.77	10952.98038	1332.6		Final Load	219796.3936
WATERSHED FUNCTION																	**% Net Removal**	**8.68**

Table C13. Low Watershed Functions for Organic Carbon - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario B - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	175.4683769	0	1099.951019	2.618930999	0	23.57037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999		Total Load	1951.295111
Wetland Function Value	-17.54683769	0	-109.9951019	-0.2618931	0	-2.357037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999			
Net Yield	157.9215392	0	989.9559175	2.357037899	0	21.21334109	0	0	20.02184	0	450.4913818	0	2.5027	72.57916706	42.546		Final Load	1759.589362
WATERSHED FUNCTION																	**% Net Removal**	**9.82**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	2386.927377	150.753308	5244.26091	1.395863963	15.3545036	2384.135649	2.791728	0	80.16091	100.2011376	23129.50567	36.99734312	57.038	1743.499794	152.61			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	40903.29957
Wetland Function Value (Both Seasons)	-318.3209932	-17.64991643	-816.4576609	-0.32348537	-1.53545036	-256.4356643	-0.46307	0	115.1017	100.2011376	24115.20417	38.83633285	68.072	2122.33168	231.69			
* Export Coefficients were **NOT** reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	2864.888939	158.8492479	7348.118948	2.911368329	13.81905324	2307.920979	4.167646	0	104.3491	91.12802185	21922.28003	35.30236037	61.803	1926.576277	209.96		Final Load	37052.07932
WATERSHED FUNCTION																	**% Net Removal**	**9.42**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	1143.061348	39.8592821	3143.740153	1.285783294	14.14361623	1567.369835	1.285783	0	37.21836	1.431475294	4593.604217	4.294425881	12.883	691.4025668	110.22			
Load Season 2 **	796.2825554	25.74585629	2920.3157	1.838989735	0	180.2209941	1.83899	0	34.9408	0	985.6984981	1.838989735	11.034	378.8318855	79.077		Total Load	16779.46748
Wetland Function Value (Both Seasons)	-193.9343903	-6.56051384	-606.4055853	-0.312477303	-1.414361623	-174.7590829	-0.31248	0	72.15916	1.431475294	5579.302715	6.133415616	23.917	1070.234452	189.3			
Net Yield	1745.409513	59.04462456	5457.650267	2.812295726	12.72925461	1572.831746	2.812296	0	65.32205	1.302896964	5068.125007	5.563781655	21.657	970.2479307	171.49		Final Load	15157.00024
WATERSHED FUNCTION																	**% Net Removal**	**9.67**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	23425.40552	12335.57482	244450.1999	16.92587104	148.9476652	23256.14681	2948.487	6.7703484	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030		Total Load	2637701.637
Wetland Function Value	-2342.540552	-1233.557482	-24445.01999	-1.692587104	-14.89476652	-2325.614681	-294.849	-0.6770348	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030			
Net Yield	21082.86497	11102.01733	220005.1799	15.23328394	134.0528987	20930.53213	2653.638	6.0933136	9213.119	20549.14915	1678447.607	2486.839706	262149	123898.2488	10876		Final Load	2383550.205
WATERSHED FUNCTION																	**% Net Removal**	**9.64**
Scenario 5 - Moderate High Flow (exisiting conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	6412.79259	1037.990818	43238.84542	6.463205594	28.43810461	7655.020706	20.68226	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2		Total Load	240685.9426
Wetland Function Value	-641.279259	-103.7990818	-4323.884542	-0.646320559	-2.843810461	-765.5020706	-2.06823	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2			
Net Yield	5771.513331	934.1917366	38914.96088	5.816885035	25.59429415	6889.518635	18.61403	0	1083.909	2942.787128	149897.5648	78.54414042	947.77	10952.98038	1332.6		Final Load	219796.3936
WATERSHED FUNCTION																	**% Net Removal**	**8.68**

Table C14. Low (no runoff reduction) Wateshed Functions for Organic Carbon - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations (2X for Season 2), Runoff Coefficients, and Function Factors - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	175.4683769	0	1099.951019	2.618930999	0	23.57037899	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999		Total Load	1951.295111
Wetland Function Value	140.3747015	0	879.9608155	-1.309465499	0	-4.714075798	0	0	22.11698	0	497.6321398	0	2.7646	80.17406696	46.999			
Net Yield	140.3747015	0	879.9608155	1.309465499	0	18.85630319	0	0	20.02184	0	450.4913818	0	2.5027	72.57916706	42.546		Final Load	1628.642812
WATERSHED FUNCTION																	**% Net Removal**	**16.54**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	2386.927377	150.753308	5244.26091	1.395863963	15.3545036	2384.135649	2.791728	0	76.37292	95.46614761	22036.52429	35.24903912	54.342	1661.110968	145.4			
Load Season 2 **	1592.565111	51.49171259	5840.631399	3.67797947	0	360.4419881	3.677979	0	69.88161	0	1971.396996	3.67797947	22.068	757.6637709	158.15		Total Load	45125.41478
Wetland Function Value (Both Seasons)	3183.59399	161.7960165	8867.913847	-2.536921717	-1.53545036	-548.9155275	5.175766	0	146.2545	95.46614761	24007.92128	38.92701859	76.41	2418.774739	303.56			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	3183.59399	161.7960165	8867.913847	2.536921717	13.81905324	2195.66211	5.175766	0	132.0079	86.39303185	21716.42729	35.20914713	69.039	2185.136148	273.92		Final Load	38928.6309
WATERSHED FUNCTION																	**% Net Removal**	**13.73**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	8	8	8	8	8	8	8	8	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	1143.061348	39.8592821	3143.740153	1.285783294	14.14361623	1567.369835	1.285783	0	35.32436	1.358629294	4359.841403	4.075887881	12.228	656.2179488	104.61			
Load Season 2 **	1592.565111	51.49171259	5840.631399	3.67797947	0	360.4419881	3.677979	0	69.88161	0	1971.396996	3.67797947	22.068	757.6637709	158.15		Total Load	21919.73367
Wetland Function Value (Both Seasons)	2188.501167	73.08079575	7187.497242	-2.481881382	-1.414361623	-385.5623646	3.97101	0	105.206	1.358629294	6331.2384	7.753867351	34.296	1413.88172	262.77			
Net Yield	2188.501167	73.08079575	7187.497242	2.481881382	12.72925461	1542.249458	3.97101	0	94.87477	1.230050964	5721.490841	7.000334416	30.932	1276.01201	237.05		Final Load	18379.1021
WATERSHED FUNCTION																	**% Net Removal**	**16.15**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	23425.40552	12335.57482	244450.1999	16.92587104	148.9476652	23256.14681	2948.487	6.7703484	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030		Total Load	2637701.637
Wetland Function Value	18740.32442	9868.459852	195560.16	-8.462935521	-14.89476652	-4651.229362	2358.789	-1.3540697	10190.08	22728.18578	1856430.588	2750.544776	289948	137036.4484	12030			
Net Yield	18740.32442	9868.459852	195560.16	8.462935521	134.0528987	18604.91745	2358.789	5.4162787	9213.119	20549.14915	1678447.607	2486.839706	262149	123898.2488	10876		Final Load	2352901.176
WATERSHED FUNCTION																	**% Net Removal**	**10.80**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	6412.79259	1037.990818	43238.84542	6.463205594	28.43810461	7655.020706	20.68226	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2		Total Load	240685.9426
Wetland Function Value	5130.234072	830.3926547	34591.07634	-3.231602797	-2.843810461	-1531.004141	16.54581	0	1190.94	3233.372851	164699.2104	86.29998713	1041.4	12034.53321	1464.2			
Net Yield	5130.234072	830.3926547	34591.07634	3.231602797	25.59429415	6124.016564	16.54581	0	1083.909	2942.787128	149897.5648	78.54414042	947.77	10952.98038	1332.6		Final Load	213957.2751
WATERSHED FUNCTION																	**% Net Removal**	**11.11**

Table C15. Expected (concentration doubled) Watershed Functions for Organic Carbon - New Madrid Floodway.

New Madrid Floodway - Expected Concentrations, Runoff Coefficients, and Function Factors - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5307798	15.39261286	9.0233			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	6580.064134	0	41248.16323	98.20991245	0	883.889212	0	0	827.7681	0	18624.78224	0	103.47101	3000.659361	1759		Total Load	73126.01441
Wetland Function Value	-5264.051307	0	-32998.53058	-49.10495622	0	-176.7778424	0	0	827.7681	0	18624.78224	0	103.47101	3000.659361	1759			
Net Yield	1316.012827	0	8249.632646	49.10495622	0	707.1113696	0	0	749.2002	0	16857.00382	0	93.650021	2715.850615	1592.1		Final Load	32329.61678
WATERSHED FUNCTION																	**% Net Removal**	**55.79**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467311	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2362525	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	89509.77664	5653.249051	196659.7841	52.34489862	575.7938848	89405.08684	104.6898	0	2858.723	3573.40416	824851.6311	1319.410767	2034.0916	62177.23239	5442.6			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.206	24624.07255	5140		Total Load	1636365.932
Wetland Function Value (Both Seasons)	-113014.5142	-5861.383768	-309184.2437	-85.93961571	-57.57938848	-20223.89029	-179.379	0	5129.876	3573.40416	888922.0335	1438.9451	2751.2976	86801.30494	10583			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	28253.62855	1465.345942	77296.06092	85.93961571	518.2144963	80895.56117	44.84483	0	4630.567	3233.162319	803976.7074	1301.36391	2485.9009	78418.68966	9550.3		Final Load	1092156.32
WATERSHED FUNCTION																	**% Net Removal**	**33.26**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453118	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2362525	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	42864.80055	1494.723079	117890.2557	48.21687351	530.3856086	58776.36881	48.21687	0	1322.033	50.84742351	163169.3821	152.5422705	457.62681	24559.30556	3915.3			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.206	24624.07255	5140		Total Load	767428.1007
Wetland Function Value (Both Seasons)	-75698.53332	-2534.56299	-246168.621	-83.87560315	-53.03856086	-14098.14669	-134.201	0	3593.185	50.84742351	227239.7844	272.0766033	1174.8328	49183.37811	9055.2			
Net Yield	18924.63333	633.6407476	61542.15524	83.87560315	477.3470478	56392.58674	33.55024	0	3240.706	46.02573616	205359.9495	245.658108	1059.717	44392.09587	8170		Final Load	400601.9018
WATERSHED FUNCTION																	**% Net Removal**	**47.80**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339.071	26627.23975	2337.5			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	1522651.359	801812.363	15889263	1100.181618	9681.598236	1511649.543	191651.6	440.07265	650208.4	1450239.515	118455077	175506.6929	18500974	8744018.305	767588		Total Load	168671861.8
Wetland Function Value	-1218121.087	-641449.8904	-12711410.4	-550.0908089	-968.1598236	-302329.9086	-153321	-88.014529	650208.4	1450239.515	118455077	175506.6929	18500974	8744018.305	767588			
Net Yield	304530.2718	160362.4726	3177852.599	550.0908089	8713.438412	1209319.634	38330.33	352.05812	586705.9	1308602.134	106886183.2	158365.8633	16694080	7890035.33	692622		Final Load	139116604.8
WATERSHED FUNCTION																	**% Net Removal**	**17.52**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67357	2191.987273	266.7			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	416831.5184	67469.4032	2810524.953	420.1083636	1848.4768	497576.3459	1344.347	0	73926.14	200707.6731	10223502.46	5356.966363	64640.727	747028.9594	90890		Total Load	15111178.07
Wetland Function Value	-333465.2147	-53975.52256	-2248419.962	-210.0541818	-184.84768	-99515.26917	-1075.48	0	73926.14	200707.6731	10223502.46	5356.966363	64640.727	747028.9594	90890			
Net Yield	83366.30368	13493.88064	562104.9905	210.0541818	1663.62912	398061.0767	268.8694	0	66969.14	181819.6011	9261395.488	4852.836327	58557.558	676728.0258	82336		Final Load	11391827.91
WATERSHED FUNCTION																	**% Net Removal**	**24.61**

Table C16. Expected Watershed Functions for Sediment - New Madrid Floodway.

New Madrid Floodway - High Retention Scenario - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	6580.064134	0	41248.16323	98.20991245	0	883.889212	0	0	827.7681	0	18624.78224	0	103.47	3000.659361	1759		Total Load	73126.01441
Wetland Function Value	-5922.057721	0	-37123.34691	-88.3889212	0	-795.5002908	0	0	165.5536	0	3724.956448	0	20.694	600.1318722	351.8			
Net Yield	658.0064134	0	4124.816323	9.820991245	0	88.3889212	0	0	149.84	0	3371.400763	0	18.73	543.170123	318.41		Final Load	9282.583645
WATERSHED FUNCTION																	**% Net Removal**	**87.31**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	89509.77664	5653.249051	196659.7841	52.34489862	575.7938848	89405.08684	104.6898	0	2858.723	3573.40416	824851.6311	1319.410767	2034.1	62177.23239	5442.6			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	1636365.932
Wetland Function Value (Both Seasons)	-127141.3285	-6594.056739	-347832.2741	-154.6913083	-518.2144963	-91007.50631	-201.802	0	1025.975	714.6808321	177784.4067	287.7890199	550.26	17360.26099	2116.5			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	14126.81427	732.672971	38648.03046	17.18792314	57.57938848	10111.94515	22.42241	0	926.1134	646.6324639	160795.3415	260.2727819	497.18	15683.73793	1910.1		Final Load	244435.9975
WATERSHED FUNCTION																	**% Net Removal**	**85.06**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	42864.80055	1494.723079	117890.2557	48.21687351	530.3856086	58776.36881	48.21687	0	1322.033	50.84742351	163169.3821	152.5422705	457.63	24559.30556	3915.3			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	767428.1007
Wetland Function Value (Both Seasons)	-85160.84999	-2851.383364	-276939.6986	-150.9760857	-477.3470478	-63441.66008	-150.976	0	718.6371	10.1694847	45447.95689	54.41532067	234.97	9836.675622	1811			
Net Yield	9462.316665	316.8203738	30771.07762	16.77512063	53.03856086	7049.073343	16.77512	0	648.1412	9.205147232	41071.9899	49.1316216	211.94	8878.419173	1634		Final Load	100188.6994
WATERSHED FUNCTION																	**% Net Removal**	**86.94**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	1522651.359	801812.363	15889263	1100.181618	9681.598236	1511649.543	191651.6	440.07265	650208.4	1450239.515	118455077	175506.6929	2E+07	8744018.305	767588		Total Load	168671861.8
Wetland Function Value	-1370386.223	-721631.1267	-14300336.7	-990.163456	-8713.438412	-1360484.588	-172486	-396.06538	130041.7	290047.9031	23691015.39	35101.33859	4E+06	1748803.661	153518			
Net Yield	152265.1359	80181.2363	1588926.3	110.0181618	968.1598236	151164.9543	19165.16	44.007265	117341.2	261720.4268	21377236.64	31673.17267	3E+06	1578007.066	138524		Final Load	28836143.75
WATERSHED FUNCTION																	**% Net Removal**	**82.90**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	416831.5184	67469.4032	2810524.953	420.1083636	1848.4768	497576.3459	1344.347	0	73926.14	200707.6731	10223502.46	5356.966363	64641	747028.9594	90890		Total Load	15111178.07
Wetland Function Value	-375148.3665	-60722.46288	-2529472.457	-378.0975273	-1663.62912	-447818.7113	-1209.91	0	14785.23	40141.53462	2044700.491	1071.393273	12928	149405.7919	18178			
Net Yield	41683.15184	6746.94032	281052.4953	42.01083636	184.84768	49757.63459	134.4347	0	13393.83	36363.92021	1852279.098	970.5672654	11712	135345.6052	16467		Final Load	2446133.337
WATERSHED FUNCTION																	**% Net Removal**	**83.81**

Table C17. High Watershed Functions for Sediments - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario A - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	6580.064134	0	41248.16323	98.20991245	0	883.889212	0	0	827.7681	0	18624.78224	0	103.47	3000.659361	1759		Total Load	73126.01441
Wetland Function Value	-658.0064134	0	-4124.816323	-9.820991245	0	-88.3889212	0	0	827.7681	0	18624.78224	0	103.47	3000.659361	1759			
Net Yield	5922.057721	0	37123.34691	88.3889212	0	795.5002908	0	0	749.2002	0	16857.00382	0	93.65	2715.850615	1592.1		Final Load	65937.04882
WATERSHED FUNCTION																	**% Net Removal**	**9.83**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	89509.77664	5653.249051	196659.7841	52.34489862	575.7938848	89405.08684	104.6898	0	2858.723	3573.40416	824851.6311	1319.410767	2034.1	62177.23239	5442.6			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	1636365.932
Wetland Function Value (Both Seasons)	-14126.81427	-732.672971	-38648.03046	-17.18792314	-57.57938848	-10111.94515	-22.4224	0	5129.876	3573.40416	888922.0335	1438.9451	2751.3	86801.30494	10583			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	127141.3285	6594.056739	347832.2741	154.6913083	518.2144963	91007.50631	201.8017	0	4630.567	3233.162319	803976.7074	1301.36391	2485.9	78418.68966	9550.3		Final Load	1477046.598
WATERSHED FUNCTION																	**% Net Removal**	**9.74**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	42864.80055	1494.723079	117890.2557	48.21687351	530.3856086	58776.36881	48.21687	0	1322.033	50.84742351	163169.3821	152.5422705	457.63	24559.30556	3915.3			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	767428.1007
Wetland Function Value (Both Seasons)	-9462.316665	-316.8203738	-30771.07762	-16.77512063	-53.03856086	-7049.073343	-16.7751	0	3593.185	50.84742351	227239.7844	272.0766033	1174.8	49183.37811	9055.2			
Net Yield	85160.84999	2851.383364	276939.6986	150.9760857	477.3470478	63441.66008	150.9761	0	3240.706	46.02573616	205359.9495	245.658108	1059.7	44392.09587	8170		Final Load	691687.004
WATERSHED FUNCTION																	**% Net Removal**	**9.87**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	1522651.359	801812.363	15889263	1100.181618	9681.598236	1511649.543	191651.6	440.07265	650208.4	1450239.515	118455077	175506.6929	2E+07	8744018.305	767588		Total Load	168671861.8
Wetland Function Value	-152265.1359	-80181.2363	-1588926.3	-110.0181618	-968.1598236	-151164.9543	-19165.2	-44.007265	650208.4	1450239.515	118455077	175506.6929	2E+07	8744018.305	767588			
Net Yield	1370386.223	721631.1267	14300336.7	990.163456	8713.438412	1360484.588	172486.5	396.06538	586705.9	1308602.134	106886183.2	158365.8633	2E+07	7890035.33	692622		Final Load	152152018.7
WATERSHED FUNCTION																	**% Net Removal**	**9.79**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	416831.5184	67469.4032	2810524.953	420.1083636	1848.4768	497576.3459	1344.347	0	73926.14	200707.6731	10223502.46	5356.966363	64641	747028.9594	90890		Total Load	15111178.07
Wetland Function Value	-41683.15184	-6746.94032	-281052.4953	-42.01083636	-184.84768	-49757.63459	-134.435	0	73926.14	200707.6731	10223502.46	5356.966363	64641	747028.9594	90890			
Net Yield	375148.3665	60722.46288	2529472.457	378.0975273	1663.62912	447818.7113	1209.912	0	66969.14	181819.6011	9261395.488	4852.836327	58558	676728.0258	82336		Final Load	13749072.74
WATERSHED FUNCTION																	**% Net Removal**	**9.01**

Table C18. Low Watershed Functions for Sediments - New Madrid Floodway.

New Madrid Floodway - Low Retention Scenario B - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	6.7	0	42	0.1	0	0.9	0	0	0.8	0	18	0	0.1	2.9	1.7	73.1		
Volume = 388	35.5622435	0	222.9274966	0.530779754	0	4.777017784	0	0	4.246238	0	95.54035568	0	0.5308	15.39261286	9.0233			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	6580.064134	0	41248.16323	98.20991245	0	883.889212	0	0	827.7681	0	18624.78224	0	103.47	3000.659361	1759		Total Load	73126.01441
Wetland Function Value	-658.0064134	0	-4124.816323	-9.820991245	0	-88.3889212	0	0	827.7681	0	18624.78224	0	103.47	3000.659361	1759			
Net Yield	5922.057721	0	37123.34691	88.3889212	0	795.5002908	0	0	749.2002	0	16857.00382	0	93.65	2715.850615	1592.1		Final Load	65937.04882
WATERSHED FUNCTION																	**% Net Removal**	**9.83**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	171	10.8	375.7	0.1	1.1	170.8	0.2	0	5.2	6.5	1500.4	2.4	3.7	113.1	9.9	2370.8		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 6707	483.7594905	30.55323098	1062.856378	0.282900287	3.111903155	483.1936899	0.565801	0	14.71081	18.38851864	4244.635903	6.789606884	10.467	319.9602244	28.007			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	89509.77664	5653.249051	196659.7841	52.34489862	575.7938848	89405.08684	104.6898	0	2995.512	3744.38991	864320.4033	1382.543967	2131.4	65152.38444	5703			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	1679538.519
Wetland Function Value (Both Seasons)	-14126.81427	-732.672971	-38648.03046	-17.18792314	-57.57938848	-10111.94515	-22.4224	0	5266.664	3744.38991	928390.8057	1502.0783	2848.6	89776.45699	10843			
* Export Coefficients were **NOT** reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	127141.3285	6594.056739	347832.2741	154.6913083	518.2144963	91007.50631	201.8017	0	4767.356	3404.148069	843445.4796	1364.49711	2583.2	81393.84171	9810.8		Final Load	1520219.184
WATERSHED FUNCTION																	**% Net Removal**	**9.49**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	88.9	3.1	244.5	0.1	1.1	121.9	0.1	0	2.6	0.1	320.9	0.3	0.9	48.3	7.7	840.4		
280 ft	43.3	1.4	158.8	0.1	0	9.8	0.1	0	1.9	0	53.6	0.1	0.6	20.6	4.3	294.6		
Volume Season 1 = 2190	231.6646835	8.07829605	637.1430271	0.260590195	2.866492147	317.6594479	0.26059	0	6.775345	0.260590195	836.2339362	0.781770585	2.3453	125.8650643	20.065			
Volume Season 2 = 1098	161.3828921	5.217922607	591.8615071	0.372708758	0	36.52545825	0.372709	0	7.081466	0	199.7718941	0.372708758	2.2363	76.77800407	16.026			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	42864.80055	1494.723079	117890.2557	48.21687351	530.3856086	58776.36881	48.21687	0	1390.427	53.47797351	171610.817	160.4339205	481.3	25829.86121	4117.8			
Load Season 2 **	51758.3661	1673.480659	189820.5205	119.5343328	0	11714.36461	119.5343	0	2271.152	0	64070.40238	119.5343328	717.21	24624.07255	5140		Total Load	777445.2351
Wetland Function Value (Both Seasons)	-9462.316665	-316.8203738	-30771.07762	-16.77512063	-53.03856086	-7049.073343	-16.7751	0	3661.58	53.47797351	235681.2194	279.9682533	1198.5	50453.93376	9257.8			
Net Yield	85160.84999	2851.383364	276939.6986	150.9760857	477.3470478	63441.66008	150.9761	0	3309.101	48.65628616	213801.3844	253.549758	1083.4	45662.65152	8372.5		Final Load	701704.1384
WATERSHED FUNCTION																	**% Net Removal**	**9.74**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	692	364.4	7221.2	0.5	4.4	687	87.1	0.2	288.6	643.7	52577.2	77.9	8211.8	3881.1	340.7	75077.7		
Volume = 515089	4747.635956	2500.055697	49542.81613	3.4303728	30.18728064	4713.332228	597.5709	1.3721491	1980.011	4416.261943	360718.7936	534.4520823	56339	26627.23975	2337.5			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	1522651.359	801812.363	15889263	1100.181618	9681.598236	1511649.543	191651.6	440.07265	650208.4	1450239.515	118455077	175506.6929	2E+07	8744018.305	767588		Total Load	168671861.8
Wetland Function Value	-152265.1359	-80181.2363	-1588926.3	-110.0181618	-968.1598236	-151164.9543	-19165.2	-44.007265	650208.4	1450239.515	118455077	175506.6929	2E+07	8744018.305	767588			
Net Yield	1370386.223	721631.1267	14300336.7	990.163456	8713.438412	1360484.588	172486.5	396.06538	586705.9	1308602.134	106886183.2	158365.8633	2E+07	7890035.33	692622		Final Load	152152018.7
WATERSHED FUNCTION																	**% Net Removal**	**9.79**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	496.1	80.3	3345	0.5	2.2	592.2	1.6	0	82.8	224.8	11450.7	6	72.4	836.7	101.8	17293.3		
Volume = 45305	1299.683143	210.3699988	8763.233449	1.309900366	5.763561611	1551.445994	4.191681	0	216.9195	588.9312046	29998.55224	15.71880439	189.67	2191.987273	266.7			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	416831.5184	67469.4032	2810524.953	420.1083636	1848.4768	497576.3459	1344.347	0	73926.14	200707.6731	10223502.46	5356.966363	64641	747028.9594	90890		Total Load	15111178.07
Wetland Function Value	-41683.15184	-6746.94032	-281052.4953	-42.01083636	-184.84768	-49757.63459	-134.435	0	73926.14	200707.6731	10223502.46	5356.966363	64641	747028.9594	90890			
Net Yield	375148.3665	60722.46288	2529472.457	378.0975273	1663.62912	447818.7113	1209.912	0	66969.14	181819.6011	9261395.488	4852.836327	58558	676728.0258	82336		Final Load	13749072.74
WATERSHED FUNCTION																	**% Net Removal**	**9.01**

Table C19. Low (no runoff reduction) Watershed Functions for Sediments - New Madrid Floodway.

St. Johns Bayou - Expected Concentrations, Runoff Coefficients, and Function Factors - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	167.0494006	0	308.5834227	232.1463275	0	97.59087043	0	0	92.31391	0	312.670435	0	0.5454	79.42380672	41.985		Total Load	1332.308723
Wetland Function Value	-133.6395205	0	-246.8667382	-185.717062	0	-29.27726113	0	0	92.31391	0	312.670435	0	0.5454	79.42380672	41.985			
Net Yield	33.40988011	0	61.71668454	46.42926551	0	68.3136093	0	0	84.9319	0	292.5852525	0	0.5018	71.99817736	38.3		Final Load	698.1861452
WATERSHED FUNCTION																	**% Net Removal**	**47.60**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	1045.04064	0	3091.785769	298.1293209	0	471.0142382	0	0	349.1595	15.07216711	12580.98954	0.061519049	6.7647	884.4205143	260.37			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	732.949883	0	1.7641	119.4804142	86.678		Total Load	21507.36771
Wetland Function Value (Both Seasons)	-1142.00917	0	-3128.406323	-369.1404618	0	-185.4872323	0	0	401.0806	15.07216711	13313.93942	0.061519049	8.5288	1003.900928	347.05			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	285.5022926	0	782.1015809	92.28511545	0	432.803542	0	0	369.5734	14.04831396	12511.86576	0.057340057	7.8426	910.8720757	316.34		Final Load	15723.29687
WATERSHED FUNCTION																	**% Net Removal**	**26.89**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	698.0016846	0	1783.981553	326.3877696	0	308.9187394	0	0	137.1268	0	2909.737668	0	3.8045	300.1074442	175.65			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	732.949883	0	1.7641	119.4804142	86.678		Total Load	9148.274462
Wetland Function Value (Both Seasons)	-864.378006	0	-2082.162951	-391.7472208	0	-136.8585826	0	0	189.0479	0	3642.687551	0	5.5686	419.5878583	262.33			
Net Yield	216.0945015	0	520.5407378	97.9368052	0	319.3366928	0	0	172.4077	0	3367.269669	0	5.0745	379.1922262	237.83		Final Load	5315.686459
WATERSHED FUNCTION																	**% Net Removal**	**41.89**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	5737.127004	0	42648.94573	3108.397097	104.9219767	2292.327996	693.1868	0	4614.735	9417.224119	516995.9557	300.3534375	83108	34098.87421	1739.4		Total Load	704859.38
Wetland Function Value	-4589.701603	0	-34119.15658	-2486.717677	-20.98439534	-687.6983988	-554.549	0	4614.735	9417.224119	516995.9557	300.3534375	83108	34098.87421	1739.4			
Net Yield	1147.425401	0	8529.789146	621.6794193	83.93758137	1604.629597	138.6374	0	4266.981	8777.617744	487054.4648	279.9537984	76845	30972.93443	1592.2		Final Load	621915.383
WATERSHED FUNCTION																	**% Net Removal**	**11.77**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.8	-0.2	-0.3	-0.8	-0.2	1	1	1	1	1	1	1			
Load	2505.268469	0	11959.36407	762.2530124	0	744.5946415	10.5847	0	710.5492	496.2632972	65632.71826	13.11709156	619.28	3489.584967	685.26		Total Load	86943.58085
Wetland Function Value	-2004.214776	0	-9567.491255	-609.8024099	0	-223.3783924	-8.46776	0	710.5492	496.2632972	65632.71826	13.11709156	619.28	3489.584967	685.26			
Net Yield	501.0536939	0	2391.872814	152.4506025	0	521.216249	2.116939	0	664.0798	468.1338221	62616.1057	12.3735812	578.78	3185.339497	632.3		Final Load	71725.82459
WATERSHED FUNCTION																	**% Net Removal**	**17.50**

Table C20. Expected Watershed Functions for Nitrogen - St. Johns Bayou.

St. Johns Bayou - High Retention Scenario - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	167.0494006	0	308.5834227	232.1463275	0	97.59087043	0	0	92.31391	0	312.670435	0	0.5454	79.42380672	41.985		Total Load	1332.308723
Wetland Function Value	-150.3444605	0	-277.7250804	-208.9316948	0	-87.83178339	0	0	18.46278	0	62.53408699	0	0.1091	15.88476134	8.397			
Net Yield	16.70494006	0	30.85834227	23.21463275	0	9.759087043	0	0	16.98638	0	58.51705049	0	0.1004	14.39963547	7.6599		Final Load	178.2003433
WATERSHED FUNCTION																	**% Net Removal**	**86.62**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	1045.04064	0	3091.785769	298.1293209	0	471.0142382	0	0	349.1595	15.07216711	12580.98954	0.061519049	6.7647	884.4205143	260.37			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	732.949883	0	1.7641	119.4804142	86.678		Total Load	21507.36771
Wetland Function Value (Both Seasons)	-1284.760317	0	-3519.457114	-415.2830195	0	-556.4616968	0	0	80.21611	3.014433422	2662.787884	0.01230381	1.7058	200.7801857	69.41			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	142.7511463	0	391.0507904	46.14255772	0	61.82907742	0	0	73.91467	2.809662792	2502.373152	0.011468011	1.5685	182.1744151	63.269		Final Load	3467.89444
WATERSHED FUNCTION																	**% Net Removal**	**83.88**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	698.0016846	0	1783.981553	326.3877696	0	308.9187394	0	0	137.1268	0	2909.737668	0	3.8045	300.1074442	175.65			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	659.6548947	0	1.5877	107.5323727	78.01		Total Load	9054.187211
Wetland Function Value (Both Seasons)	-972.4252568	0	-2342.43332	-440.7156234	0	-410.5757479	0	0	37.80958	0	713.8785126	0	1.0784	81.52796338	50.732			
Net Yield	108.0472508	0	260.2703689	48.9684026	0	45.61952755	0	0	34.48154	0	660.260836	0	0.9832	73.68779779	46.007		Final Load	1278.325389
WATERSHED FUNCTION																	**% Net Removal**	**85.88**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	5737.127004	0	42648.94573	3108.397097	104.9219767	2292.327996	693.1868	0	4614.735	9417.224119	516995.9557	300.3534375	83108	34098.87421	1739.4		Total Load	704859.38
Wetland Function Value	-5163.414303	0	-38384.05115	-2797.557387	-94.42977904	-2063.095196	-623.868	0	922.947	1883.444824	103399.1911	60.07068751	16622	6819.774843	347.88			
Net Yield	573.7127004	0	4264.894573	310.8397097	10.49219767	229.2327996	69.31868	0	853.3961	1755.523549	97410.89296	55.99075968	15369	6194.586886	318.44		Final Load	127416.3476
WATERSHED FUNCTION																	**% Net Removal**	**81.92**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	2505.268469	0	11959.36407	762.2530124	0	744.5946415	10.5847	0	710.5492	496.2632972	65632.71826	13.11709156	619.28	3489.584967	685.26		Total Load	86943.58085
Wetland Function Value	-2254.741623	0	-10763.42766	-686.0277112	0	-670.1351773	-9.52623	0	142.1098	99.25265943	13126.54365	2.623418311	123.86	697.9169934	137.05			
Net Yield	250.5268469	0	1195.936407	76.22530124	0	74.45946415	1.05847	0	132.816	93.62676441	12523.22114	2.47471624	115.76	637.0678994	126.46		Final Load	15229.62935
WATERSHED FUNCTION																	**% Net Removal**	**82.48**

Table C21. High Watershed Functions for Nitrogen - St. Johns Bayou.

St. Johns Bayou - Low Retention Scenario - Nitrogen																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	167.0494006	0	308.5834227	232.1463275	0	97.59087043	0	0	92.31391	0	312.670435	0	0.5454	79.42380672	41.985		Total Load	1332.308723
Wetland Function Value	-16.70494006	0	-30.85834227	-23.21463275	0	-9.759087043	0	0	92.31391	0	312.670435	0	0.5454	79.42380672	41.985			
Net Yield	150.3444605	0	277.7250804	208.9316948	0	87.83178339	0	0	84.9319	0	292.5852525	0	0.5018	71.99817736	38.3		Final Load	1213.149725
WATERSHED FUNCTION																	**% Net Removal**	**8.94**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	1045.04064	0	3091.785769	298.1293209	0	471.0142382	0	0	349.1595	15.07216711	12580.98954	0.061519049	6.7647	884.4205143	260.37			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	732.949883	0	1.7641	119.4804142	86.678		Total Load	21507.36771
Wetland Function Value (Both Seasons)	-142.7511463	0	-391.0507904	-46.14255772	0	-61.82907742	0	0	401.0806	15.07216711	13313.93942	0.061519049	8.5288	1003.900928	347.05			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	1284.760317	0	3519.457114	415.2830195	0	556.4616968	0	0	369.5734	14.04831396	12511.86576	0.057340057	7.8426	910.8720757	316.34		Final Load	19906.56649
WATERSHED FUNCTION																	**% Net Removal**	**7.44**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.75	9.75	15	9.75	6.75	1.875	3.75			
Concentration/Export Coefficient Season 2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	698.0016846	0	1783.981553	326.3877696	0	308.9187394	0	0	137.1268	0	2909.737668	0	3.8045	300.1074442	175.65			
Load Season 2 **	382.470823	0	818.7221356	163.2962564	0	147.276536	0	0	51.92106	0	732.949883	0	1.7641	119.4804142	86.678		Total Load	9148.274462
Wetland Function Value (Both Seasons)	-108.0472508	0	-260.2703689	-48.9684026	0	-45.61952755	0	0	189.0479	0	3642.687551	0	5.5686	419.5878583	262.33			
Net Yield	972.4252568	0	2342.43332	440.7156234	0	410.5757479	0	0	172.4077	0	3367.269669	0	5.0745	379.1922262	237.83		Final Load	8327.92767
WATERSHED FUNCTION																	**% Net Removal**	**8.97**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	5737.127004	0	42648.94573	3108.397097	104.9219767	2292.327996	693.1868	0	4614.735	9417.224119	516995.9557	300.3534375	83108	34098.87421	1739.4		Total Load	704859.38
Wetland Function Value	-573.7127004	0	-4264.894573	-310.8397097	-10.49219767	-229.2327996	-69.3187	0	4614.735	9417.224119	516995.9557	300.3534375	83108	34098.87421	1739.4			
Net Yield	5163.414303	0	38384.05115	2797.557387	94.42977904	2063.095196	623.8681	0	4266.981	8777.617744	487054.4648	279.9537984	76845	30972.93443	1592.2		Final Load	658915.7004
WATERSHED FUNCTION																	**% Net Removal**	**6.52**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	6.75	9.75	15	9.75	6.75	1.875	3.75			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	2505.268469	0	11959.36407	762.2530124	0	744.5946415	10.5847	0	710.5492	496.2632972	65632.71826	13.11709156	619.28	3489.584967	685.26		Total Load	86943.58085
Wetland Function Value	-250.5268469	0	-1195.936407	-76.22530124	0	-74.45946415	-1.05847	0	710.5492	496.2632972	65632.71826	13.11709156	619.28	3489.584967	685.26			
Net Yield	2254.741623	0	10763.42766	686.0277112	0	670.1351773	9.526226	0	664.0798	468.1338221	62616.1057	12.3735812	578.78	3185.339497	632.3		Final Load	82540.97269
WATERSHED FUNCTION																	**% Net Removal**	**5.06**

Table C22. Low Watershed Functions for Nitrogen- St. Johns Bayou.

St. Johns Bayou - Expected Concentrations, Runoff Coefficients, and Function Factors - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	23.38691608	0	43.20167918	32.50048586	0	13.66272186	0	0	13.34862	0	36.31928689	0	0.0789	10.6714818	5.2145		Total Load	178.3845524
Wetland Function Value	-9.354766432	0	-17.28067167	-16.25024293	0	-2.732544372	0	0	13.34862	0	36.31928689	0	0.0789	10.6714818	5.2145			
Net Yield	14.03214965	0	25.92100751	16.25024293	0	10.93017749	0	0	12.31514	0	33.50736134	0	0.0728	9.631893693	4.6985		Final Load	127.3592476
WATERSHED FUNCTION																	**% Net Removal**	**28.60**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	146.3056896	0	432.8500076	41.73810492	0	65.94199335	0	0	50.85734	1.681273158	1408.458347	0.006862339	0.9853	117.4391306	31.277			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	2610.610942
Wetland Function Value (Both Seasons)	-77.64581699	0	-214.0761098	-31.07506848	0	-16.87031207	0	0	57.34747	1.681273158	1500.077082	0.006862339	1.2058	132.3741824	42.112			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	116.4687255	0	321.1141647	31.07506848	0	67.48124828	0	0	53.01434	1.537933717	1388.886195	0.00627728	1.1124	119.5293636	37.943		Final Load	2138.168954
WATERSHED FUNCTION																	**% Net Removal**	**18.10**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	97.72023584	0	249.7574175	45.69428774	0	43.24862352	0	0	19.71778	0	348.1293581	0	0.5471	40.66030893	22.341			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	1180.88647
Wetland Function Value (Both Seasons)	-58.21163548	0	-140.8390738	-33.0531599	0	-12.3316381	0	0	26.20791	0	439.7480934	0	0.7676	55.5953607	33.176			
Net Yield	87.31745323	0	211.2586107	33.0531599	0	49.32655242	0	0	23.95616	0	402.2890148	0	0.701	50.11919283	29.877		Final Load	887.8983792
WATERSHED FUNCTION																	**% Net Removal**	**24.81**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	717.1408755	0	5331.118216	388.5496371	13.11524709	286.5409995	86.64834	0	620.013	954.4392696	53382.80707	30.44093588	11166	4058.86347	186.85		Total Load	77222.49726
Wetland Function Value	-286.8563502	0	-2132.447286	-194.2748185	-1.311524709	-57.3081999	-34.6593	0	620.013	954.4392696	53382.80707	30.44093588	11166	4058.86347	186.85			
Net Yield	430.2845253	0	3198.67093	194.2748185	11.80372238	229.2327996	51.98901	0	576.5437	874.4884728	49640.1207	27.89098099	10383	3668.120997	168.45		Final Load	69454.99113
WATERSHED FUNCTION																	**% Net Removal**	**10.06**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.4	-0.4	-0.4	-0.5	-0.1	-0.2	-0.4	-0.2	1	1	1	1	1	1	1			
Load	313.1585587	0	1494.920509	95.28162655	0	93.07433018	1.323087	0	98.15205	46.1858719	6371.649158	1.220771944	85.545	404.1537852	67.86		Total Load	9004.664706
Wetland Function Value	-125.2634235	0	-597.9682034	-47.64081328	0	-18.61486604	-0.52923	0	98.15205	46.1858719	6371.649158	1.220771944	85.545	404.1537852	67.86			
Net Yield	187.8951352	0	896.9523051	47.64081328	0	74.45946415	0.793852	0	92.34337	42.66968751	5994.572589	1.12783315	80.482	366.1231014	61.24		Final Load	7846.300511
WATERSHED FUNCTION																	**% Net Removal**	**12.86**

Table C23. Expected Watershed Functions for Phosphorus- St. Johns Bayou.

St. Johns Bayou - High Retention Scenario - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	23.38691608	0	43.20167918	32.50048586	0	13.66272186	0	0	13.34862	0	36.31928689	0	0.0789	10.6714818	5.2145		Total Load	178.3845524
Wetland Function Value	-21.04822447	0	-38.88151126	-29.25043727	0	-12.29644967	0	0	2.669724	0	7.263857379	0	0.0158	2.134296361	1.0429			
Net Yield	2.338691608	0	4.320167918	3.250048586	0	1.366272186	0	0	2.463028	0	6.701472269	0	0.0146	1.926378739	0.9397		Final Load	23.32031431
WATERSHED FUNCTION																	**% Net Removal**	**86.93**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	146.3056896	0	432.8500076	41.73810492	0	65.94199335	0	0	50.85734	1.681273158	1408.458347	0.006862339	0.9853	117.4391306	31.277			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	2610.610942
Wetland Function Value (Both Seasons)	-174.7030882	0	-481.6712471	-55.93512327	0	-75.91640432	0	0	11.46949	0.336254632	300.0154164	0.001372468	0.2412	26.47483648	8.4223			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	19.41145425	0	53.51902746	6.215013697	0	8.435156035	0	0	10.60287	0.307586743	277.7772389	0.001255456	0.2225	23.90587272	7.5886		Final Load	407.9866008
WATERSHED FUNCTION																	**% Net Removal**	**84.37**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	97.72023584	0	249.7574175	45.69428774	0	43.24862352	0	0	19.71778	0	348.1293581	0	0.5471	40.66030893	22.341			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	1180.88647
Wetland Function Value (Both Seasons)	-130.9761798	0	-316.887916	-59.49568781	0	-55.49237147	0	0	5.241582	0	87.94961869	0	0.1535	11.11907214	6.6353			
Net Yield	14.55290887	0	35.20976844	6.610631979	0	6.165819052	0	0	4.791233	0	80.45780296	0	0.1402	10.02383857	5.9754		Final Load	163.9276489
WATERSHED FUNCTION																	**% Net Removal**	**86.12**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	717.1408755	0	5331.118216	388.5496371	13.11524709	286.5409995	86.64834	0	620.013	954.4392696	53382.80707	30.44093588	11166	4058.86347	186.85		Total Load	77222.49726
Wetland Function Value	-645.4267879	0	-4798.006394	-349.6946734	-11.80372238	-257.8868995	-77.9835	0	124.0026	190.8878539	10676.56141	6.088187176	2233.2	811.772694	37.37			
Net Yield	71.71408755	0	533.1118216	38.85496371	1.311524709	28.65409995	8.664834	0	115.3087	174.8976946	9928.02414	5.578196198	2076.6	733.6241994	33.69		Final Load	13750.0584
WATERSHED FUNCTION																	**% Net Removal**	**82.19**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	313.1585587	0	1494.920509	95.28162655	0	93.07433018	1.323087	0	98.15205	46.1858719	6371.649158	1.220771944	85.545	404.1537852	67.86		Total Load	9004.664706
Wetland Function Value	-281.8427028	0	-1345.428458	-85.7534639	0	-83.76689716	-1.19078	0	19.63041	9.237174379	1274.329832	0.244154389	17.109	80.83075703	13.572			
Net Yield	31.31585587	0	149.4920509	9.528162655	0	9.307433018	0.132309	0	18.46867	8.533937501	1198.914518	0.22556663	16.096	73.22462028	12.248		Final Load	1527.487599
WATERSHED FUNCTION																	**% Net Removal**	**83.04**

Table C24. High Watershed Functions for Phosphorus - St. Johns Bayou.

St. Johns Bayou - Low Retention Scenario - Phosphorus																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	23.38691608	0	43.20167918	32.50048586	0	13.66272186	0	0	13.34862	0	36.31928689	0	0.0789	10.6714818	5.2145		Total Load	178.3845524
Wetland Function Value	-2.338691608	0	-4.320167918	-3.250048586	0	-1.366272186	0	0	13.34862	0	36.31928689	0	0.0789	10.6714818	5.2145			
Net Yield	21.04822447	0	38.88151126	29.25043727	0	12.29644967	0	0	12.31514	0	33.50736134	0	0.0728	9.631893693	4.6985		Final Load	161.7022927
WATERSHED FUNCTION																	**% Net Removal**	**9.35**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	146.3056896	0	432.8500076	41.73810492	0	65.94199335	0	0	50.85734	1.681273158	1408.458347	0.006862339	0.9853	117.4391306	31.277			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	2610.610942
Wetland Function Value (Both Seasons)	-19.41145425	0	-53.51902746	-6.215013697	0	-8.435156035	0	0	57.34747	1.681273158	1500.077082	0.006862339	1.2058	132.3741824	42.112			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	174.7030882	0	481.6712471	55.93512327	0	75.91640432	0	0	53.01434	1.537933717	1388.886195	0.00627728	1.1124	119.5293636	37.943		Final Load	2390.25561
WATERSHED FUNCTION																	**% Net Removal**	**8.44**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Concentration/Export Coefficient Season 2	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	97.72023584	0	249.7574175	45.69428774	0	43.24862352	0	0	19.71778	0	348.1293581	0	0.5471	40.66030893	22.341			
Load Season 2 **	47.80885287	0	102.340267	20.41203205	0	18.40956701	0	0	6.490132	0	91.61873537	0	0.2205	14.93505177	10.835		Total Load	1180.88647
Wetland Function Value (Both Seasons)	-14.55290887	0	-35.20976844	-6.610631979	0	-6.165819052	0	0	26.20791	0	439.7480934	0	0.7676	55.5953607	33.176			
Net Yield	130.9761798	0	316.887916	59.49568781	0	55.49237147	0	0	23.95616	0	402.2890148	0	0.701	50.11919283	29.877		Final Load	1069.794758
WATERSHED FUNCTION																	**% Net Removal**	**9.41**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	717.1408755	0	5331.118216	388.5496371	13.11524709	286.5409995	86.64834	0	620.013	954.4392696	53382.80707	30.44093588	11166	4058.86347	186.85		Total Load	77222.49726
Wetland Function Value	-71.71408755	0	-533.1118216	-38.85496371	-1.311524709	-28.65409995	-8.66483	0	620.013	954.4392696	53382.80707	30.44093588	11166	4058.86347	186.85			
Net Yield	645.4267879	0	4798.006394	349.6946734	11.80372238	257.8868995	77.98351	0	576.5437	874.4884728	49640.1207	27.89098099	10383	3668.120997	168.45		Final Load	71479.53731
WATERSHED FUNCTION																	**% Net Removal**	**7.44**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	1.1	0.5	1.1	0.5	1.1	0.1	0.04			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	313.1585587	0	1494.920509	95.28162655	0	93.07433018	1.323087	0	98.15205	46.1858719	6371.649158	1.220771944	85.545	404.1537852	67.86		Total Load	9004.664706
Wetland Function Value	-31.31585587	0	-149.4920509	-9.528162655	0	-9.307433018	-0.13231	0	98.15205	46.1858719	6371.649158	1.220771944	85.545	404.1537852	67.86			
Net Yield	281.8427028	0	1345.428458	85.7534639	0	83.76689716	1.190778	0	92.34337	42.66968751	5994.572589	1.12783315	80.482	366.1231014	61.24		Final Load	8436.541241
WATERSHED FUNCTION																	**% Net Removal**	**6.31**

Table C25. Low Watershed Functions for Phosphorus - St. Johns Bayou.

St. Johns Bayou - Expected Concentrations, Runoff Coefficients, and Function Factors - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	445.4650682	0	822.8891272	619.0568735	0	260.2423212	0	0	206.717	0	562.441333	0	1.2214	207.9384081	103.21		Total Load	3229.177386
Wetland Function Value	356.3720545	0	658.3113018	-309.5284367	0	-52.04846423	0	0	206.717	0	562.441333	0	1.2214	207.9384081	103.21			
Net Yield	356.3720545	0	658.3113018	309.5284367	0	208.1938569	0	0	187.0317	0	508.8808463	0	1.1051	188.1367298	93.378		Final Load	2510.937657
WATERSHED FUNCTION																	**% Net Removal**	**22.24**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	2786.77504	0	8244.76205	795.0115223	0	1256.037969	0	0	747.6075	29.08747762	20704.46657	0.118724398	14.484	2303.490779	626.03			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	45856.40684
Wetland Function Value (Both Seasons)	3249.342227	0	8779.068668	-669.6661884	0	-349.3919511	0	0	920.6777	29.08747762	23147.63285	0.118724398	20.365	2701.758826	914.96			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	3249.342227	0	8779.068668	669.6661884	0	1397.567804	0	0	833.1971	26.35720256	20959.90643	0.107580419	18.417	2445.716525	827.31		Final Load	39206.65267
WATERSHED FUNCTION																	**% Net Removal**	**14.50**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	1861.337826	0	4757.284143	870.3673856	0	823.7833051	0	0	317.3601	0	5603.185925	0	8.8049	788.6149698	438.71			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	23817.98455
Wetland Function Value (Both Seasons)	2508.992455	0	5989.086342	-707.3441201	0	-262.9410184	0	0	490.4303	0	8046.352201	0	14.685	1186.883017	727.64			
Net Yield	2508.992455	0	5989.086342	707.3441201	0	1051.764074	0	0	442.5951	0	7263.041191	0	13.25	1071.19597	656.55		Final Load	19703.81683
WATERSHED FUNCTION																	**% Net Removal**	**17.27**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	19123.75668	0	142163.1524	10361.32366	349.7399224	7641.09332	2310.623	0	12198.32	22435.71786	1050269.149	715.5659565	219683	109649.7874	5163.4		Total Load	1602064.171
Wetland Function Value	15299.00534	0	113730.5219	-5180.661828	-34.97399224	-1528.218664	1848.498	0	12198.32	22435.71786	1050269.149	715.5659565	219683	109649.7874	5163.4			
Net Yield	15299.00534	0	113730.5219	5180.661828	314.7659301	6112.874656	1848.498	0	11039.14	20303.69661	950464.1791	647.5671595	198807	99229.98816	4672.7		Final Load	1427650.181
WATERSHED FUNCTION																	**% Net Removal**	**10.89**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	0.8	0.8	0.8	-0.5	-0.1	-0.2	0.8	-0.2	1	1	1	1	1	1	1			
Load	8350.894898	0	39864.5469	2540.843375	0	2481.982138	35.28232	0	1680.103	1017.022172	109065.734	26.88164332	1464.3	11000.00578	1914.8		Total Load	177527.5988
Wetland Function Value	6680.715919	0	31891.63752	-1270.421687	0	-496.3964276	28.22586	0	1680.103	1017.022172	109065.734	26.88164332	1464.3	11000.00578	1914.8			
Net Yield	6680.715919	0	31891.63752	1270.421687	0	1985.585711	28.22586	0	1525.205	923.2572551	99010.35885	24.40327547	1329.3	9985.854214	1738.2		Final Load	156393.1906
WATERSHED FUNCTION																	**% Net Removal**	**11.90**

Table C26. Expected Watershed Functions for Organic Carbon - St. Johns Bayou.

St. Johns Bayou - High Retention - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	445.4650682	0	822.8891272	619.0568735	0	260.2423212	0	0	206.717	0	562.441333	0	1.2214	207.9384081	103.21		Total Load	3229.177386
Wetland Function Value	-400.9185614	0	-740.6002145	-557.1511861	0	-234.218089	0	0	41.34341	0	112.4882666	0	0.2443	41.58768162	20.641			
Net Yield	44.54650682	0	82.28891272	61.90568735	0	26.02423212	0	0	37.40633	0	101.7761693	0	0.221	37.62734596	18.676		Final Load	410.4717405
WATERSHED FUNCTION																	**% Net Removal**	**87.29**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	2786.77504	0	8244.76205	795.0115223	0	1256.037969	0	0	747.6075	29.08747762	20704.46657	0.118724398	14.484	2303.490779	626.03			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	45856.40684
Wetland Function Value (Both Seasons)	-3655.510005	0	-9876.452252	-1205.399139	0	-1572.26378	0	0	184.1355	5.817495525	4629.52657	0.02374488	4.0729	540.3517653	182.99			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	406.1677784	0	1097.383584	133.9332377	0	174.6959755	0	0	166.6394	5.271440512	4191.981287	0.021516084	3.6834	489.1433049	165.46		Final Load	6834.382132
WATERSHED FUNCTION																	**% Net Removal**	**85.10**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	1861.337826	0	4757.284143	870.3673856	0	823.7833051	0	0	317.3601	0	5603.185925	0	8.8049	788.6149698	438.71			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	23817.98455
Wetland Function Value (Both Seasons)	-2822.616512	0	-6737.722135	-1273.219416	0	-1183.234583	0	0	98.08606	0	1609.27044	0	2.937	237.3766034	145.53			
Net Yield	313.6240569	0	748.6357928	141.468824	0	131.4705092	0	0	88.51901	0	1452.608238	0	2.65	214.2391941	131.31		Final Load	3224.525151
WATERSHED FUNCTION																	**% Net Removal**	**86.46**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	19123.75668	0	142163.1524	10361.32366	349.7399224	7641.09332	2310.623	0	12198.32	22435.71786	1050269.149	715.5659565	219683	109649.7874	5163.4		Total Load	1602064.171
Wetland Function Value	-17211.38101	0	-127946.8372	-9325.19129	-314.7659301	-6876.983988	-2079.56	0	2439.664	4487.143573	210053.8298	143.1131913	43937	21929.95749	1032.7			
Net Yield	1912.375668	0	14216.31524	1036.132366	34.97399224	764.109332	231.0623	0	2207.827	4060.739323	190092.8358	129.5134319	39761	19845.99763	934.54		Final Load	275227.7395
WATERSHED FUNCTION																	**% Net Removal**	**82.82**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	8350.894898	0	39864.5469	2540.843375	0	2481.982138	35.28232	0	1680.103	1017.022172	109065.734	26.88164332	1464.3	11000.00578	1914.8		Total Load	177527.5988
Wetland Function Value	-7515.805408	0	-35878.09221	-2286.759037	0	-2233.783924	-31.7541	0	336.0205	203.4044344	21813.14681	5.376328664	292.86	2200.001156	382.95			
Net Yield	835.0894898	0	3986.45469	254.0843375	0	248.1982138	3.528232	0	305.0409	184.651451	19802.07177	4.880655093	265.86	1997.170843	347.64		Final Load	28234.67575
WATERSHED FUNCTION																	**% Net Removal**	**84.10**

Table C27. High Watershed Functions for Organic Carbon - St. Johns Bayou.

St. Johns Bayou - Low Retention - Organic Carbon																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	445.4650682	0	822.8891272	619.0568735	0	260.2423212	0	0	206.717	0	562.441333	0	1.2214	207.9384081	103.21		Total Load	3229.177386
Wetland Function Value	-44.54650682	0	-82.28891272	-61.90568735	0	-26.02423212	0	0	206.717	0	562.441333	0	1.2214	207.9384081	103.21			
Net Yield	400.9185614	0	740.6002145	557.1511861	0	234.218089	0	0	187.0317	0	508.8808463	0	1.1051	188.1367298	93.378		Final Load	2911.420058
WATERSHED FUNCTION																	**% Net Removal**	**9.84**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	2786.77504	0	8244.76205	795.0115223	0	1256.037969	0	0	747.6075	29.08747762	20704.46657	0.118724398	14.484	2303.490779	626.03			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	45856.40684
Wetland Function Value (Both Seasons)	-406.1677784	0	-1097.383584	-133.9332377	0	-174.6959755	0	0	920.6777	29.08747762	23147.63285	0.118724398	20.365	2701.758826	914.96			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	3655.510005	0	9876.452252	1205.399139	0	1572.26378	0	0	833.1971	26.35720256	20959.90643	0.107580419	18.417	2445.716525	827.31		Final Load	41420.63296
WATERSHED FUNCTION																	**% Net Removal**	**9.67**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Concentration/Export Coefficient Season 2	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	1861.337826	0	4757.284143	870.3673856	0	823.7833051	0	0	317.3601	0	5603.185925	0	8.8049	788.6149698	438.71			
Load Season 2 **	1274.902743	0	2729.073785	544.3208546	0	490.9217868	0	0	173.0702	0	2443.166277	0	5.8803	398.2680472	288.93		Total Load	23817.98455
Wetland Function Value (Both Seasons)	-313.6240569	0	-748.6357928	-141.468824	0	-131.4705092	0	0	490.4303	0	8046.352201	0	14.685	1186.883017	727.64			
Net Yield	2822.616512	0	6737.722135	1273.219416	0	1183.234583	0	0	442.5951	0	7263.041191	0	13.25	1071.19597	656.55		Final Load	21463.42249
WATERSHED FUNCTION																	**% Net Removal**	**9.89**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	19123.75668	0	142163.1524	10361.32366	349.7399224	7641.09332	2310.623	0	12198.32	22435.71786	1050269.149	715.5659565	219683	109649.7874	5163.4		Total Load	1602064.171
Wetland Function Value	-1912.375668	0	-14216.31524	-1036.132366	-34.97399224	-764.109332	-231.062	0	12198.32	22435.71786	1050269.149	715.5659565	219683	109649.7874	5163.4			
Net Yield	17211.38101	0	127946.8372	9325.19129	314.7659301	6876.983988	2079.56	0	11039.14	20303.69661	950464.1791	647.5671595	198807	99229.98816	4672.7		Final Load	1448918.573
WATERSHED FUNCTION																	**% Net Removal**	**9.56**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	4	4	4	4	4	4	4	4	3.6	3.6	3.6	3.6	3.6	3.6	3.6			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	8350.894898	0	39864.5469	2540.843375	0	2481.982138	35.28232	0	1680.103	1017.022172	109065.734	26.88164332	1464.3	11000.00578	1914.8		Total Load	177527.5988
Wetland Function Value	-835.0894898	0	-3986.45469	-254.0843375	0	-248.1982138	-3.52823	0	1680.103	1017.022172	109065.734	26.88164332	1464.3	11000.00578	1914.8			
Net Yield	7515.805408	0	35878.09221	2286.759037	0	2233.783924	31.75409	0	1525.205	923.2572551	99010.35885	24.40327547	1329.3	9985.854214	1738.2		Final Load	162482.7986
WATERSHED FUNCTION																	**% Net Removal**	**8.47**

Table C28. Low Watershed Functions for Organic Carbon - St. Johns Bayou.

St. Johns Bayou - Expected Concentrations, Runoff Coefficients, and Function Factors - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	16704.94006	0	30858.34227	23214.63275	0	9759.087043	0	0	7738.19	0	21054.27712	0	45.72	7783.910269	3863.4		Total Load	121022.4796
Wetland Function Value	-13363.95205	0	-24686.67382	-11607.31638	0	-1951.817409	0	0	7738.19	0	21054.27712	0	45.72	7783.910269	3863.4			
Net Yield	3340.988011	0	6171.668454	11607.31638	0	7807.269635	0	0	6999.988	0	19045.75887	0	41.359	7041.347333	3494.8		Final Load	65550.52038
WATERSHED FUNCTION																	**% Net Removal**	**45.84**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	104504.064	0	309178.5769	29812.93209	0	47101.42382	0	0	27971.57	1088.301623	774653.0956	4.442047443	541.93	86184.60448	23423			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1947118.377
Wetland Function Value (Both Seasons)	-149898.1939	0	-389254.6983	-32596.89382	0	-15802.26799	0	0	39221.14	1088.301623	933458.9035	4.442047443	924.15	112072.0275	42203			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	37474.54846	0	97313.67458	32596.89382	0	63209.07197	0	0	35464.67	985.9163086	844700.4556	4.024148198	834.94	101375.2041	38122		Final Load	1252080.966
WATERSHED FUNCTION																	**% Net Removal**	**35.70**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load Season 1 *	69800.16846	0	178398.1553	32638.77696	0	30891.87394	0	0	11884.23	0	209823.3026	0	329.72	29531.37727	16429			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1122380.741
Wetland Function Value (Both Seasons)	-122135.0774	0	-284630.3611	-34009.81625	0	-12560.35802	0	0	23133.79	0	368629.1106	0	711.94	55418.80033	35209			
Net Yield	30533.76935	0	71157.59028	34009.81625	0	50241.43207	0	0	20864.03	0	332536.2404	0	641.95	49985.29896	31748		Final Load	621718.4125
WATERSHED FUNCTION																	**% Net Removal**	**44.61**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	1243044.184	0	9240604.908	673486.0376	22733.09495	496671.0658	150190.5	0	775369.6	1426095.951	66758932.76	45483.97868	1E+07	6969739.894	328204		Total Load	102094379.1
Wetland Function Value	-994435.3473	0	-7392483.926	-336743.0188	-2273.309495	-99334.21316	-120152	0	775369.6	1426095.951	66758932.76	45483.97868	1E+07	6969739.894	328204			
Net Yield	248608.8368	0	1848120.982	336743.0188	20459.78546	397336.8526	30038.09	0	700022.8	1287514.569	60271609.72	41064.05687	1E+07	6292452.941	296310		Final Load	84377165.99
WATERSHED FUNCTION																	**% Net Removal**	**17.35**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.8	-0.8	-0.8	-0.5	-0.1	-0.2	-0.8	-0.2	1	1	1	1	1	1	1			
Load	542808.1684	0	2591195.548	165154.8194	0	161328.839	2293.351	0	105418.7	63813.44337	6843371.002	1686.698944	91878	690199.5504	120142		Total Load	11259148.34
Wetland Function Value	-434246.5347	0	-2072956.439	-82577.40968	0	-32265.7678	-1834.68	0	105418.7	63813.44337	6843371.002	1686.698944	91878	690199.5504	120142			
Net Yield	108561.6337	0	518239.1096	82577.40968	0	129063.0712	458.6702	0	95350.31	57718.72376	6189771.616	1525.605033	83103	624279.6985	108668		Final Load	7999316.524
WATERSHED FUNCTION																	**% Net Removal**	**28.95**

Table C29. Expected Watershed Functions for Sediments - St. Johns Bayou.

St. Johns Bayou - High Retention - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	16704.94006	0	30858.34227	23214.63275	0	9759.087043	0	0	7738.19	0	21054.27712	0	45.72	7783.910269	3863.4		Total Load	121022.4796
Wetland Function Value	-15034.44605	0	-27772.50804	-20893.16948	0	-8783.178339	0	0	1547.638	0	4210.855423	0	9.1441	1556.782054	772.68			
Net Yield	1670.494006	0	3085.834227	2321.463275	0	975.9087043	0	0	1399.998	0	3809.151773	0	8.2718	1408.269467	698.96		Final Load	15378.35579
WATERSHED FUNCTION																	**% Net Removal**	**87.29**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	104504.064	0	309178.5769	29812.93209	0	47101.42382	0	0	27971.57	1088.301623	774653.0956	4.442047443	541.93	86184.60448	23423			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1947118.377
Wetland Function Value (Both Seasons)	-168635.4681	0	-437911.5356	-58674.40887	0	-71110.20597	0	0	7844.227	217.6603247	186691.7807	0.888409489	184.83	22414.40551	8440.6			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	18737.27423	0	48656.83729	6519.378763	0	7901.133996	0	0	7092.933	197.1832617	168940.0911	0.80482964	166.99	20275.04082	7624.3		Final Load	286111.9798
WATERSHED FUNCTION																	**% Net Removal**	**85.31**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load Season 1 *	69800.16846	0	178398.1553	32638.77696	0	30891.87394	0	0	11884.23	0	209823.3026	0	329.72	29531.37727	16429			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1122380.741
Wetland Function Value (Both Seasons)	-137401.9621	0	-320209.1563	-61217.66926	0	-56521.61108	0	0	4626.758	0	73725.82212	0	142.39	11083.76007	7041.8			
Net Yield	15266.88468	0	35578.79514	6801.963251	0	6280.179008	0	0	4172.805	0	66507.24808	0	128.39	9997.059792	6349.7		Final Load	151082.983
WATERSHED FUNCTION																	**% Net Removal**	**86.54**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	1243044.184	0	9240604.908	673486.0376	22733.09495	496671.0658	150190.5	0	775369.6	1426095.951	66758932.76	45483.97868	1E+07	6969739.894	328204		Total Load	102094379.1
Wetland Function Value	-1118739.766	0	-8316544.417	-606137.4339	-20459.78546	-447003.9592	-135171	0	155073.9	285219.1901	13351786.55	9096.795735	3E+06	1393947.979	65641			
Net Yield	124304.4184	0	924060.4908	67348.60376	2273.309495	49667.10658	15019.05	0	140004.6	257502.9139	12054321.94	8212.811374	3E+06	1258490.588	59262		Final Load	17481844.66
WATERSHED FUNCTION																	**% Net Removal**	**82.88**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Load	542808.1684	0	2591195.548	165154.8194	0	161328.839	2293.351	0	105418.7	63813.44337	6843371.002	1686.698944	91878	690199.5504	120142		Total Load	11259148.34
Wetland Function Value	-488527.3515	0	-2332075.993	-148639.3374	0	-145195.9551	-2064.02	0	21083.74	12762.68867	1368674.2	337.3397887	18376	138039.9101	24028			
Net Yield	54280.81684	0	259119.5548	16515.48194	0	16132.8839	229.3351	0	19070.06	11543.74475	1237954.323	305.1210067	16621	124855.9397	21734		Final Load	1778361.398
WATERSHED FUNCTION																	**% Net Removal**	**84.21**

Table C30. High Watershed Functions for Sediments - St. Johns Bayou.

St. Johns Bayou - Low Retention - Sediments																		
Contour Range	Cypress/Tupelo 16	Scrub/shrub marsh 19	BLH 42	Riparian 43	River 45	Open water 24	Marsh 29	Sandbar 31	Cotton 36	Cotton/soybeans 37	Soybeans 38	Soybeans/corn 39	Corn 40	Herb. Veg. 41	Pasture	LC Total		
Scenario 1 - Existing Conditions (No Flood)																		
275 ft	15.32	0	28.3	21.29	0	8.95	0	0	6.77	0	18.42	0	0.04	6.81	3.38	109.28		
Volume = 644	90.28257687	0	166.7752562	125.4644949	0	52.74341142	0	0	39.89641	0	108.5512445	0	0.2357	40.13213763	19.919			
Concentration/Export Coefficient	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	16704.94006	0	30858.34227	23214.63275	0	9759.087043	0	0	7738.19	0	21054.27712	0	45.72	7783.910269	3863.4		Total Load	121022.4796
Wetland Function Value	-1670.494006	0	-3085.834227	-2321.463275	0	-975.9087043	0	0	7738.19	0	21054.27712	0	45.72	7783.910269	3863.4			
Net Yield	15034.44605	0	27772.50804	20893.16948	0	8783.178339	0	0	6999.988	0	19045.75887	0	41.359	7041.347333	3494.8		Final Load	109106.5798
WATERSHED FUNCTION																	**% Net Removal**	**9.85**
Scenario 2 - Authorized Project (2 seasons)																		
285 ft	250.07	0	739.84	71.34	0	112.71	0	0	62.97	2.45	1743.91	0.01	1.22	194.02	52.73	3231.27		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 7298	564.7967703	0	1670.969099	161.1252913	0	254.5616987	0	0	142.2212	5.533458981	3938.716102	0.022585547	2.7554	438.2047802	119.09			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	104504.064	0	309178.5769	29812.93209	0	47101.42382	0	0	27971.57	1088.301623	774653.0956	4.442047443	541.93	86184.60448	23423			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1947118.377
Wetland Function Value (Both Seasons)	-18737.27423	0	-48656.83729	-6519.378763	0	-7901.133996	0	0	39221.14	1088.301623	933458.9035	4.442047443	924.15	112072.0275	42203			
* Export Coefficients were reduced by 50% for upland and ag land covers ** No Export for upland and ag land covers																		
Net Yield	168635.4681	0	437911.5356	58674.40887	0	71110.20597	0	0	35464.67	985.9163086	844700.4556	4.024148198	834.94	101375.2041	38122		Final Load	1757818.396
WATERSHED FUNCTION																	**% Net Removal**	**9.72**
Scenario 3 - Avoid and Minimize (2 seasons)																		
282 ft	101.09	0	258.37	47.27	0	44.74	0	0	16.58	0	292.73	0	0.46	41.2	22.92	825.36		
280 ft	80.22	0	171.72	34.25	0	30.89	0	0	10.89	0	153.73	0	0.37	25.06	18.18	525.31		
Volume Season 1 = 3080	377.2380537	0	964.1606087	176.3976931	0	166.9564796	0	0	61.87167	0	1092.381991	0	1.7166	153.7462441	85.531			
Volume Season 2 = 1692	258.3850298	0	553.1024348	110.3177172	0	99.49530753	0	0	35.0762	0	495.1574499	0	1.1918	80.71713845	58.557			
Concentration/Export Coefficient Season 1	150	150	150	150	150	150	150	150	130	130	130	130	130	130	130			
Concentration/Export Coefficient Season 2	260	260	260	260	260	260	260	260	0	0	0	0	0	0	0			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load Season 1 *	69800.16846	0	178398.1553	32638.77696	0	30891.87394	0	0	11884.23	0	209823.3026	0	329.72	29531.37727	16429			
Load Season 2 **	82868.67831	0	177389.796	35380.85555	0	31909.91614	0	0	11249.56	0	158805.808	0	382.22	25887.42307	18780		Total Load	1122380.741
Wetland Function Value (Both Seasons)	-15266.88468	0	-35578.79514	-6801.963251	0	-6280.179008	0	0	23133.79	0	368629.1106	0	711.94	55418.80033	35209			
Net Yield	137401.9621	0	320209.1563	61217.66926	0	56521.61108	0	0	20864.03	0	332536.2404	0	641.95	49985.29896	31748		Final Load	1011126.203
WATERSHED FUNCTION																	**% Net Removal**	**9.91**
Scenario 4 - Extreme High Flow (existing conditions)																		
300 and below	686.78	0	5105.42	372.1	12.56	274.41	82.98	0	416.29	765.66	35842.36	24.42	7497.1	3742	176.21	54998.3		
Volume = 310381	3875.819129	0	28812.26083	2099.933454	70.88192471	1548.623325	468.2948	0	2349.318	4320.975675	202275.1165	137.8134237	42309	21117.84732	994.44			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	1243044.184	0	9240604.908	673486.0376	22733.09495	496671.0658	150190.5	0	775369.6	1426095.951	66758932.76	45483.97868	1E+07	6969739.894	328204		Total Load	102094379.1
Wetland Function Value	-124304.4184	0	-924060.4908	-67348.60376	-2273.309495	-49667.10658	-15019	0	775369.6	1426095.951	66758932.76	45483.97868	1E+07	6969739.894	328204			
Net Yield	1118739.766	0	8316544.417	606137.4339	20459.78546	447003.9592	135171.4	0	700022.8	1287514.569	60271609.72	41064.05687	1E+07	6292452.941	296310		Final Load	92139915.21
WATERSHED FUNCTION																	**% Net Removal**	**9.75**
Scenario 5 - Moderate High Flow (existing conditions)																		
290 and below	485.21	0	2316.24	147.63	0	144.21	2.05	0	90	54.48	5842.45	1.44	78.44	589.25	102.57	9853.97		
Volume = 34372	1692.479084	0	8079.363067	514.953705	0	503.0242755	7.150681	0	313.9324	190.0337184	20379.26758	5.022917667	273.61	2055.384885	357.78			
Concentration	260	260	260	260	260	260	260	260	130	130	130	130	130	130	130			
Wetland Function Factor	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	1	1	1	1	1	1	1			
Load	542808.1684	0	2591195.548	165154.8194	0	161328.839	2293.351	0	105418.7	63813.44337	6843371.002	1686.698944	91878	690199.5504	120142		Total Load	11259148.34
Wetland Function Value	-54280.81684	0	-259119.5548	-16515.48194	0	-16132.8839	-229.335	0	105418.7	63813.44337	6843371.002	1686.698944	91878	690199.5504	120142			
Net Yield	488527.3515	0	2332075.993	148639.3374	0	145195.9551	2064.016	0	95350.31	57718.72376	6189771.616	1525.605033	83103	624279.6985	108668		Final Load	10276919.28
WATERSHED FUNCTION																	**% Net Removal**	**8.72**

Table C31. Low Watershed Functions for Sediments - St. Johns Bayou.

APPENDIX D

Literature Review of Herbicide Application

Literature Review of Herbicide Application

Herbicide transport in surface and subsurface drainage was extensively studied during the Management Systems Evaluations Areas (MSEA) programs evaluation of farming-systems impacts on water quality in Walnut Creek Watershed, Iowa. The MSEA program was formed as a joint partnership between USDA-ARS, USDA-CSREES, USDA-ES, State Agricultural Experiment Stations, Cooperative Extension Service, U.S. Geological Survey, and USEPA (Hatfield, J.L. et al. 1999). The objective of the study was to gain a better understanding of the impacts of farming practices on water quality in the Midwest. The Walnut Creek watershed near Ames, Iowa was selected as a representative site.

The Walnut Creek watershed has been extensively monitored as part of the EPA Midwest Agricultural Surface/Subsurface Transport and Effects Research (MASTER) program. Corn and soybeans are the primary production crops within the Walnut Creek watershed. Approximately 88 percent of the watershed are represented by one of these two land uses (Donigian et al. 1993). Farming practices within the watershed utilize a corn-soybean rotation scheme. The other 12 percent of the watershed contain scattered pastures; wetland forests along stream channels, residential areas, and road networks. The total amount of acreage in corn was approximately 2,500 ha.

A detailed groundwater model was applied to the site to gain an understanding of the potential for herbicide transport from land application to water resources at the site (Lin et al., 1995). Typical use of the herbicide atrazine in the watershed corresponded to a pre-emergence application to acreage planted with corn. This type of application of the herbicide was incorporated into the simulation conducted by Lin et al. (1995). The model selected for the study was FEMWATER, a three-dimensional finite element model of density-dependent flow and transport through saturated-unsaturated porous media. The FEMWATER model allows for the evaluation of the impact of the application of agrichemicals on groundwater quality. The simulation described by Lin selected atrazine as the agrichemical to be simulated in the transport simulation.

In the Walnut Creek watershed, atrazine is typically applied with metachlor to control both annual and broadleaf weeds in acreage planted with corn. A pre-emergence banded application is sprayed directly onto the crop row. Crop rows range in size from approximately 25 to 30 cm depending on the planter being used. Atrazine is the common name for 2-chloro-4(ethylamino)-6(isopropylamino)-s-triazine and is a triazine herbicide. Herbicides in this family are not subject to excessive leaching from soils and are reversibly adsorbed to clay and organic colloids (Klingman and Ashton 1982). The selected simulation period was for the 1992-growing season. Donigian, Chinnaswamy, and Beyerlein (1993) calculated the amount of atrazine applied during the growing season to be 0.4 kg ha-1 of active ingredient. This value reflects 578 kg of active ingredient being applied to 1,413 ha of treated corn. To allow for the evaluation of the maximum possible amount of corn acreage being treated with atrazine for the 1992-growing season the entire 2,500 ha of corn were treated at the 0.4 kg ha^{-1} rate.

Results from the simulation revealed that the herbicide leached to a depth of approximately 1.2 m during the simulation period from 6 April to 26 September. During the time span the herbicide was only found in the surface soil. No atrazine was found in any of the soil layers at the end of the simulation period. A sensitivity analyses was

conducted to determine the impacts of altering the land use, saturated hydraulic conductivity, distribution coefficient, decay constant, and loading rate parameters on the simulation output from the FEMWATER model. The analysis revealed that predicted concentrations of atrazine generated from the model upon altering the parameters were reasonable and represented the physical processes occurring within the watershed.

The simulation results coincide well with data collected by Moorman et al. (1999). Atrazine concentrations in the soil following the 1994-growing season (183 days after treatment) showed that the concentration decreased dramatically with depth. Concentrations ranged from 49 ug/kg at the 0-7.5 cm depth to less than 5 ug/kg from the 15-30 cm range. This value decreased to zero ug/kg at approximately the 30 cm range. In Morrman's study it was stated that the atrazine concentrations in subsurface drainage and groundwater were generally well below the Maximum Contaminant Limit (MCL) for drinking water. Only 1.4% of the groundwater samples beneath the subsurface drains (wells at the 2.6 m depth) contained > 3 ug L^{-1} atrazine.

The other potentially pathway for atrazine loss is to surface water resources via overland flow. Jaynes et al. (1999) examined the potential effect of atrazine contamination to surface waters following atrazine application to corn as part of the MASTER program for a six-year period. During that period it was concluded that herbicide losses via stream discharge were a small fraction of the herbicide applied each year. Typically this value was found to be approximately < 0.006 kg kg^{-1}. It was noted that atrazine concentrations did occasionally exceed the MCL for drinking water. However, it was noted that the high concentration flows were ephemeral and monthly flow-averaged concentrations exceeded the MCL in only 1 month in four years.

Literature reports demonstrate that the potential contamination to water resources from atrazine application to corn and corn/soybean rotation is rather limited. The primary concern appears to be the relationship between application time and precipitation frequency. The worse scenarios for surface water contamination are high flow events immediately following application. Groundwater concentrations appear to be the highest during low runoff precipitation events in which high atrazine rates are applied year after year at the same location. It is a feasible assumption that through adoption of Best Management Practices (BMPs), in combination with monitoring efforts, that atrazine contamination to water resources can be maintained below the MCL.

References:

Hatfield, J.L., Jaynes, M.R., Burkart, C.A., Cambardella, T.B., Morrman, J.H., Prueger, and Smith, M.A. 1999. Special submissions—farming systems impacts on water quality in Walnut Creek Watershed, Iowa, J. Environ. Qual. 28:11-24.

Donigian, A.S., Chinnaswamy, R.V., and Beyerlein, D.C. 1993. Surface water exposure assessment for Walnut Creek, Iowa, preliminary application of the EPA hydrological simulation program – FORTRAN (HSPF) to assess agrichemical contributions and impacts, Final Review Draft, U.S. Environmental Protection Agency, Athens, GA.

Lin, H.J., Deliman, P.N., and Martin, W.D. 1995. FEMWATER usability for the EPA MASTER and wellhead protection research programs, Technical Report HL-95-5, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Klingman, G.C. and Ashton, F.M. 1982. Weed science principles and practices, John Wiley & Sons, NY, 237-249.

Moorman, T.B., Jaynes, D.B., Cambardella, J.L., Hatfield, R.L., Pfeiffer, R.L., and Morrow, A.J. 1999. Water quality in Walnut Creek Watershed: herbicides in soils, subsurface drainage, and groundwater, J. Environ. Qual. 28:35-45.

Jaynes, D.B., Hatfield, J.L., and Meek, D.W. Water quality in Walnut Creek Watershed: herbicides and nitrate in surface waters, J. Environ. Qual. 28:45-59.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
April 2000	Final Report	

4. TITLE AND SUBTITLE
Supplemental Water Quality Analysis—St. Johns Bayou and New Madrid Floodway

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Steven L. Ashby, Carlos E. Ruiz, Patrick N. Deliman

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

U.S. Army Engineer Research and Development Center
Environmental Laboratory
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

8. PERFORMING ORGANIZATION REPORT NUMBER

ERDC/EL SR-00-7

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Engineer District, Memphis
Memphis, TN 38103-1894

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

A supplemental assessment of water quality data was conducted to describe potential impacts on water quality in the St. Johns Bayou and New Madrid Floodway as a result of the proposed flood control project. Existing water quality data from Federal and state resource agencies and literature-based information on land use effects on water quality were compiled for evaluation. Results of this evaluation were used to describe water quality conditions and, in conjunction with land cover and hydrology information, the relative transport/retention of selected materials associated with various hydrologic events based on selected surface water elevations. Specific issues addressed included evaluation of 1) the effects of hydrologic changes on water quality for both the area impacted by the proposed project and in relationship to the overall water quality of the Mississippi River, 2) the effects on water quality associated with potential changes in pesticide use, and 3) the effects of proposed groundwater supplement on Big Oak Tree State Park.

Water quality in the area reflects conditions typical for basins where agriculture is the dominant land use. In general, nutrient concentrations (with the exception of phosphorus) were not excessively high except during periods of elevated flow, and basin concentrations were not substantially different than observations for the Mississippi River. Sediment concentrations were generally lower than concentrations in the Mississippi River and increase with runoff as expected. With the exception of a few occasional high concentrations of nitrates,

(Continued)

15. SUBJECT TERMS

Big Oak Tree State Park	Nutrients	Water quality
New Madrid Floodway	St. Johns Bayou	Wetlands

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. TELEPHONE NUMBER** *(include area code)*
UNCLASSIFIED		UNCLASSIFIED		186	

14. (Concluded).

groundwater quality is acceptable although phosphorus concentrations in groundwater were generally higher than in surface waters. Point sources were the most notable sources of extremes (high nutrients or low dissolved oxygen concentrations).

Potential changes in pesticide usage and impacts on water quality were evaluated with an assessment of potential changes in cropping practices, a literature review of herbicide transport research, and an assessment of pesticide data compiled in the data retrievals. In general, pesticide concentrations were relatively low in surface and subsurface waters, and water supply concentrations were below water quality criteria for drinking water. The impact of pesticides, atrazine in particular, on public groundwater resources is expected to be minimal.

Water quality with the project alternative should be similar to conditions that exist during periods of no flooding. Material processing should be similar between these two scenarios as well. The basin most likely retains or removes material from headwaters and floodwaters, and this process is maximized during low-water periods and is comparable with the alternative project.

Impacts to the water quality of the Mississippi River with the proposed or alternative project in place are not expected to be discernible, due to the overwhelming volume of water in the Mississippi River relative to floodwater volume in the project area. Mass balance estimates indicated that impacts to material loads of the Mississippi River are less than 0.1% for moderate flows with the project.

Potential impacts to Big Oak Tree State Park with the project are likely to be associated with a decreased supply of sediments and the associated sustainability of the site. Historical alteration in the flow regime associated with the development of agriculture in the area during the 20^{th} century has been suggested as a major mechanism contributing to the decline at the park. The use of groundwater to restore a flooding regime more conducive to the sustainability of the park is suggested, and the impacts of reduction in material supply (e.g. sediments) can be lessened with the use of surface water when available.